

AD-A044 029

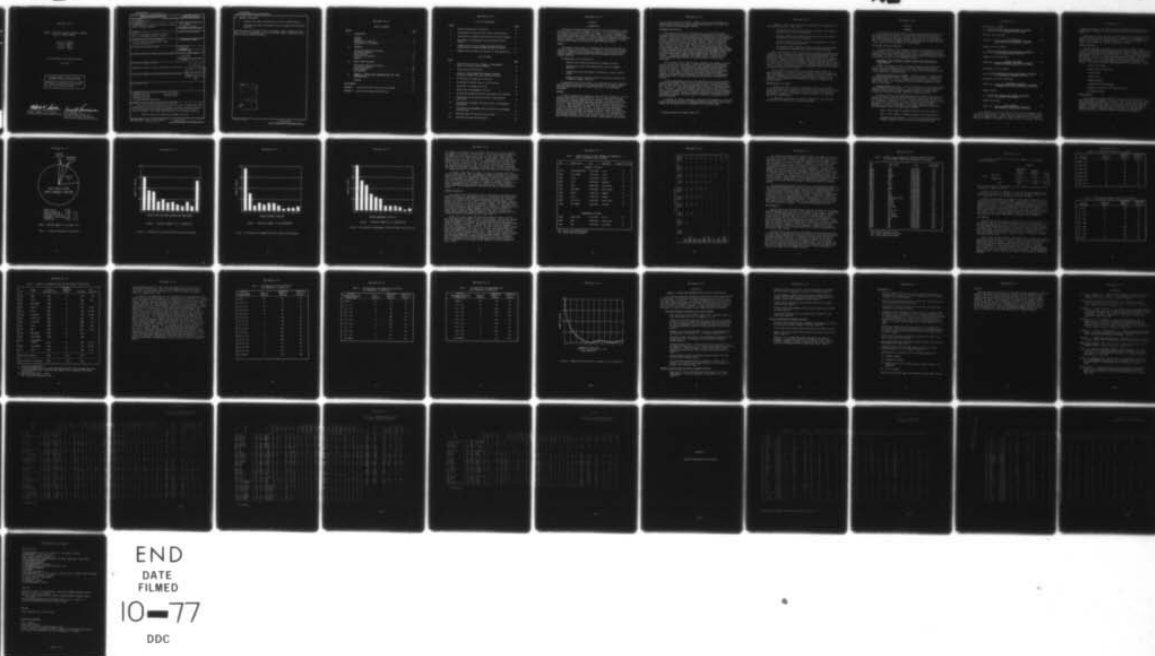
TRAINING ANALYSIS AND EVALUATION GROUP (NAVY) ORLANDO FLA F/G 5/9
ACADEMIC ATTRITION FROM NAVY TECHNICAL TRAINING CLASS 'A' SCHOOL--ETC(U)
JUL 77 M G MIDDLETON, W C RANKIN, E K GREEN

UNCLASSIFIED

TAE-47

NL

1 OF 1
AD
A044 029



END
DATE
FILMED
10-77
DDC



AD A 044029

T A E G

TRAINING
ANALYSIS
AND
EVALUATION
GROUP

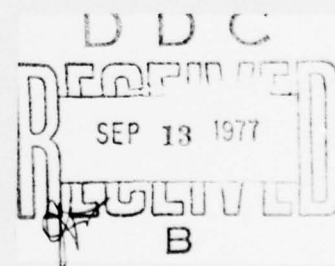
12
B-5

AEG REPORT
O. 47

ACADEMIC ATTRITION FROM NAVY TECHNICAL
TRAINING CLASS "A" SCHOOL COURSES



FOCUS
ON
THE
TRAINED
MAN



AD A 044029
DDC FILE COPY

APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION IS UNLIMITED.

JULY 1977



TRAINING ANALYSIS AND EVALUATION GROUP
ORLANDO, FLORIDA 32813

TAEG Report No. 47

ACADEMIC ATTRITION FROM NAVY TECHNICAL TRAINING
CLASS "A" SCHOOL COURSES

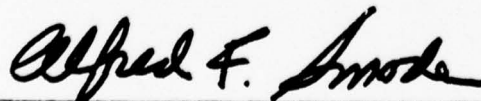
Morris G. Middleton
William C. Rankin
Eric K. Green
Clarence J. Papetti

Training Analysis and Evaluation Group

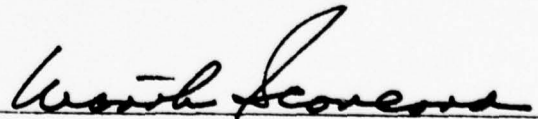
July 1977

GOVERNMENT RIGHTS IN DATA STATEMENT

Reproduction of this publication in whole
or in part is permitted for any purpose
of the United States Government.



ALFRED F. SMODE, Ph.D., Director,
Training Analysis and Evaluation Group



WORTH SCANLAND, Ph.D.
Assistant Chief of Staff for
Research and Program Development,
Chief of Naval Education and Training

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER TAEG Report No. 47 ✓	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) ACADEMIC ATTRITION FROM NAVY TECHNICAL TRAINING CLASS "A" SCHOOL COURSES	5. TYPE OF REPORT & PERIOD COVERED Final Report Nov 1976 - Jun 1977	
	6. PERFORMING ORG. REPORT NUMBER	
7. AUTHOR(s) Morris G. Middleton, William C. Rankin, Eric K. Green and Clarence J. Papetti	8. CONTRACT OR GRANT NUMBER(s)	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Training Analysis and Evaluation Group ✓ Orlando, Florida 32813	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS	
11. CONTROLLING OFFICE NAME AND ADDRESS	12. REPORT DATE July 1977	
	13. NUMBER OF PAGES 58	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	15. SECURITY CLASS. (of this report) Unclassified	
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution is unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) D D C RECEIVED SEP 13 1977 RECEIVED B		
18. SUPPLEMENTARY NOTES 407 620		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Academic attrition Cost of training Personnel attrition Attrition cost Training attrition Training aptitude requirements		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Attrition of enlisted personnel during first tour enlistment has become a major area of concern in the all-volunteer U.S. Navy. Attrition from the "A" school training environment was perceived to be a part of the overall attrition problem. This study investigated 147 A1 and A3 Navy courses to: identify factors associated with academic attrition; → next page		

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 65 IS OBSOLETE
S/N 0102- LF-014-6601

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

20. ABSTRACT (continued)

- identify the extent and pattern of attrition in these courses; and
- determine the overall and specific cost of academic and nonacademic attrition.

Extensive data are provided on over 20 variables. Major variables are academic attrition, nonacademic attrition, qualified inputs, unqualified inputs, and cost per equivalent graduate.

ACCESSION for	
NTIS	White Section <input checked="" type="checkbox"/>
DDC	Buff Section <input type="checkbox"/>
UNANNOUNCED	<input type="checkbox"/>
JUSTIFICATION	
BY	
DISTRIBUTION/AVAILABILITY CODES	
Dist. Avail. and/or SPECIAL	
A	

S/N 0102- LF-014-6601

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

TAEG Report No. 47

TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
I	INTRODUCTION.	3
	Purpose	3
	Approach.	3
	Background on Attrition	4
	Organization of the Report.	5
II	APPROACH.	7
	Preliminary Descriptive Analysis.	7
	Correlation Analysis.	9
	Waiver Analysis	9
	Attrition Cost Analysis	10
	Summary	11
III	RESULTS AND DISCUSSION.	13
	Preliminary Descriptive Analysis.	13
	Correlation Analysis.	18
	Waiver Analysis	21
	Cost Analysis	23
IV	SUMMARY OF FINDINGS AND RECOMMENDATIONS FOR FUTURE CONSIDERATIONS.	35
	Postnote.	38
	BIBLIOGRAPHY.	39
	APPENDIX A Attrition Data for Class A1 and A3 Courses	41
	APPENDIX B Qualified and Unqualified Attrition.	51

LIST OF ILLUSTRATIONS

<u>Figure</u>		<u>Page</u>
1	Relative Proportions of Attrition.	14
2	Distribution of Total Attrition from A1 and A3 Courses . . .	15
3	Distribution of Academic Attrition from A1 and A3 Courses. .	16
4	Distribution of Nonacademic Attrition from A1 and A3 Courses.	17
5	Academic Attrition Costs Proportions Attributable to Courses Above or Below \$150,000 Threshold for Concern . . .	27
6	Academic Attrition Cost As a Percent of Total Course Cost. .	33

LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Courses Having Attrition (Academic or Nonacademic) Equal to or Greater Than 10 Percent.	19
2	Correlations with Attrition.	20
3	Courses in Which Unqualified Students (Waivers) Attrited at Higher Rates than Qualified Students	22
4	Distribution of Annual Cost of Courses	24
5	Distribution of Annual Cost of Total Attrition	24
6	Annual Cost of Academic Attrition.	26
7	Annual Cost of Nonacademic Attrition	26
8	Courses With Academic Attrition Cost Greater Than \$150,000 .	28
9	Distribution of the Attrition Cost As a Percentage of Course Cost.	30
10	Distribution of Academic Attrition Cost As a Percentage of Course Cost.	31
11	Distribution of Nonacademic Attrition Cost As a Percentage of Course Cost	32
A-1	Attrition Data for Class A1 and A3 Courses	43
B-1	Qualified and Unqualified Attrition.	53

SECTION I

INTRODUCTION

Attrition of enlisted personnel during first-tour enlistment is a major area of concern in the all-volunteer U.S. Navy. Part of this concern centers on attrition in the class "A" school environment. The training community has become increasingly interested, both in terms of economic considerations and instructional effectiveness, in failures who do not complete this important phase of training. To provide solutions to attenuating attrition, training variables which impact on attrition are identified and assessed.

PURPOSE

The purpose of this study is to determine the extent and the nature of attrition in Navy class "A" schools. The intent is to examine the variables involved in students failure to complete technical training and to develop feasible solutions for ameliorating significant problems contributing to academic attrition.

The objectives of the study are to:

- . identify those factors associated with academic attrition
- . determine the overall and course-specific costs of academic attrition
- . identify the extent and pattern of attrition in class A1 and A3 courses
- . suggest corrective courses of action for monitoring, controlling, or reducing academic attrition.

An operational goal of this effort is to identify those major variables that contribute to attrition and to recommend means for the Chief of Naval Education and Training (CNET) to control attrition in the schoolhouse environment.

APPROACH

In order to determine the magnitude of the attrition problem in class "A" schools, historical data were gathered on attrition rates and on numerous variables that logically appeared to have potential influence on attrition. Data reduction techniques were employed to determine the extent of attrition in the "A" school environment and to identify key variables impacting on attrition. These variables were then examined in terms of their contribution to the costs associated with attrition. In order to achieve meaningful results in a short time span, the attrition data were sought from readily available existing data bases and personnel reports. Also, the emphasis was placed on enlisted Navy class "A" school courses since 70 to 80 percent of the graduates of Recruit Training go to these courses, and the bulk of man-hours of Navy training occurs in this setting. Both academic and nonacademic

attrition were analyzed and studied. However, the focus of the study was on academic attrition because of the greater perceived potential for effecting change through training management options.

BACKGROUND ON ATTRITION

With current attrition from the Navy prior to the end of first-term obligated service at 39 percent¹, the need for understanding the sources and conditions of attrition and developing counteractive solutions is of significant concern. Traditionally, attrition studies have examined the relationship of personnel background factors to enlistment success. Research of this type has focused on the use of aptitude scores, education level, and number of school expulsions to predict individual and recruiting district attrition rates (Lockman, 1976; Plag, 1968). Ongoing research employing reading level and personality measures to predict attrition of female enlistees and recruits is being conducted by the Navy Personnel Research and Development Center (NPRDC). In general, these studies have failed to establish the existence of highly predictive relationships between preenlistment factors and attrition from the Navy. According to Goodstadt and Glickman (1975), it may be naive to assume that preenlistment factors can predict behavior in the military environment.

Post enlistment factors have also been examined in the attempt to provide solutions to the attrition problem. Recently the Canadian Force Personnel Applied Research Unit (1975) conducted a study relating trainee attitude to attrition in training. Currently the Human Resources Laboratory (HRL) at Lackland Air Force Base and NPRDC are conducting studies of post enlistment factors. The HRL study is similar to the Canadian study while NPRDC is attempting to determine the relationship of job satisfaction and job performance to attrition of students from Navy Basic Electricity and Electronics training.

In their comprehensive review of Navy and Marine Corps attrition studies, Goodstadt and Glickman (1975) cited the need for research on organizational factors, administration factors, and personnel costs in relation to attrition. Bell and Holz (1975) have examined these types of factors in the Army environment. Similarly, a phase of the NPRDC study in Basic Electricity and Electronics training addresses the relationship between type of training management and academic attrition. Research underway at the Naval Health Research Center (Gunderson and Hoiberg, 1977) deals with the influence of shipboard environments on attrition.

In general, the studies conducted to date have placed emphasis on attrition outside the domain of training. Although addressing substantial issues, these studies are not appropriate to the objectives of the present study.

¹ Information supplied by BUPERS (Code 21211)

In addition, several attrition/training management issues appropriate to CNET require definition. Specifically:

- . the desirability and/or extent of CNET involvement in the personnel selection function must be established
- . the role of CNET in the reduction of attrition both from the Navy and technical training must be defined
- . attrition should be examined in terms of costs/benefits at various points in the pipeline of training
- . the responsibility of CNET with regard to the Navy's social burden of reclaiming the marginal human resource must be determined.

CNET is obligated to control the quality of its product and attempts to accomplish this by producing instructional programs which accommodate the wide range of aptitudes and abilities present in the All-Volunteer Force. CNET Instruction 1540.4 establishes the overall policy and guidelines on attrition and setbacks. However, local management at the school level has available a variety of options to deal with the complex problem of attrition that in essence can negate any attrition policy or standard. The major options available provide for tutoring, additional classroom or laboratory instruction, the authority to increase setbacks, and counseling.

Since the CNET training community has no direct policy control for keeping personnel in the Navy vs. early elimination of "high risk" personnel, this study addresses attrition from training courses under CNET control. The intent is to examine the implications associated with the control of this attrition for the management of the resources allocated to operating the training system.

ORGANIZATION OF THE REPORT

In addition to this Introduction, three major sections are provided. Section II presents the rationale for and the data sources used in the analyses and describes the analyses performed. Section III presents the results of the analyses. Section IV summarizes the major findings of the study with appropriate recommendations.

In addition two appendices are provided. Appendices A and B provide a compilation of the data used in the various analyses.

SECTION II

APPROACH

This section describes the sources of data, the variables identified, and the various analyses performed. The analyses described below do not exhaust the analytical options that might have been used. The analyses undertaken were those deemed most pertinent, relevant, and meaningful, given the available data. The four analyses conducted are described below with the data used and a brief description of the content of the data source.

PRELIMINARY DESCRIPTIVE ANALYSIS

The initial effort of this study was to examine the magnitude and variability of academic attrition among A1 and A3 courses. The rationale was to let actual attrition data suggest problem areas as well as hypotheses about possible correlates of attrition. This purely descriptive analysis of academic attrition also served as a base line for subsequent analyses.

DATA SOURCE: NAVY INTEGRATED TRAINING RESOURCES AND ADMINISTRATIVE SYSTEM (NITRAS)

NITRAS is an automated training information system designed to provide direct support information for the Chief of Naval Personnel and the Navy Recruiting Command. NITRAS consists of four files, two of which were utilized in this study and are described below:

Master Course Reference File (MCRF). The MCRF collects and standardizes at one central point all formal training course data elements, schedules, and input/requirements plans. It is a compilation of student statistics on the course/class level. It interfaces with various automated systems to provide Navy training reports.

Training Summary File (TSF). The TSF is a repository for training summary statistics for all training courses. It provides the capability to monitor average trainees on board, course achievement, numbers of trainees under instruction, attrition, and other variations of statistical data.

The data utilized in this preliminary descriptive analysis were acquired from the TSF Reports 1500-1207 and 1500-1208 which are extracts from the TSF containing all FY 76 data on attrition. The data elements used from this report are listed below. Equations 1, 3, 5 and 7 were derived for utilization in the analysis of data and are based on the formulas identified here as formulas 2, 4, 6, and 8 respectively. These latter formulas are taken from the NITRAS Reports Manual, and CNET Report 1500-1207.

- . Input - Actual number of students enrolling during the current FY
- . Grads - Actual number of students graduating during the current FY
- . Standard attrition (percent). This value is the CNTECHTRA approved maximum acceptable rate of attrition for a particular course.

. Attrition total (number)

$$TA = \frac{\text{Percent attrition total (enrollments + graduates)}}{2 - \text{percent attrition total}} \quad (1)$$

. Attrition total (percent)

$$\text{Percent TA} = \frac{\text{Total attrition}}{\frac{\text{Total attrition} + \text{enrollments} + \text{graduates}}{2}} \quad (2)$$

. Academic attrition (number)

$$AA = \frac{\text{Percent academic attrition (enrollment + graduates)}}{2 - \text{percentage academic attrition}} \quad (3)$$

. Academic attrition (percent)

$$\text{Percent AA} = \frac{\text{Academic Attrition}}{\frac{\text{Academic attrition} + \text{enrollment} + \text{graduates}}{2}} \quad (4)$$

. Nonacademic attrition (number)

$$NAA = \frac{\text{Percent nonacademic attrition (enrollment + graduates)}}{2 - \text{percentage nonacademic attrition}} \quad (5)$$

. Nonacademic attrition (percentage)

$$\text{Percent NAA} = \frac{\text{Nonacademic attrition}}{\frac{\text{Nonacademic attrition} + \text{enrollments} + \text{graduates}}{2}} \quad (6)$$

. Setback (number)

$$SB = \frac{\text{Percent total setback (enrollments + graduates)}}{2 - \text{percent total setback}} \quad (7)$$

. Setback (percentage)

$$\text{Percent SB} = \frac{\text{Total setbacks}}{\frac{\text{Total setbacks} + \text{enrollments} + \text{graduates}}{2}} \quad (8)$$

It was determined from report 1500-1208 that CNET has managerial control over 147 A1 and A3 courses. Using equations 1 through 8, basic descriptive statistical summaries were inspected. Initial class intervals of 5 percent, less than or equal to 10 percent, less than or equal to 15 percent, less than

or equal to 20 percent, less than or equal to 25 percent, and greater than 25 percent were used because the extent of attrition in A1 and A3 courses was not known.

Based upon this first sampling, relatively few courses were found to have academic attrition greater than 10 percent. Therefore, it was decided to depict class intervals of 0 through 10 percent in 1 percent increments and to group an open interval for courses greater than 10 percent.

CORRELATION ANALYSIS

Several hypotheses concerning possible relationships between course variables and attrition were identified from the original analysis and correlation analyses were performed to test these hypotheses. Data on selected variables were obtained from the TSF Report 1500-1208. In addition, the minimum aptitude requirements for entering a course were obtained from the MCRF. This variable was expressed in terms of the minimum Armed Services Vocational Aptitude Battery (ASVAB) scores required to qualify an individual for specific "A" courses. The variables that were deemed appropriate for examination included:

- . course length (days)
- . number of course convenings
- . minimum ASVAB
- . student input
- . student graduates
- . standard attrition percentage
- . method of instruction (lock-step/self-paced)
- . percentage setback

WAIVER ANALYSIS

The availability or qualifications of incoming personnel often do not match the manpower requirements of the Navy. Thus, in spite of minimum (ASVAB) requirements for entry into most "A" courses, some personnel who do not meet minimum aptitude requirements are still admitted to these courses as waived students. To ascertain the implications of waiver policy and its impact on academic attrition, a correlation analysis was made. In performing this correlation analysis a number of additional variables were addressed.

DATA SOURCES: CNET REPORT 1500-1120, CNTECHTRA MONTHLY AND CUMULATIVE STUDENT ATTRITION REPORT AND CNET REPORT 1500-1121, CNTECHTRA MONTHLY CUMULATIVE STUDENT QUALITY REPORT

These reports are extracted from the same NITRAS data base as the Training Summary reports. Report 1500-1120 contains monthly and cumulative data on student attrition per Course Data Processing (CDP) Code and Unit Identification Code (UIC) by academic and nonacademic categories, mental group, USN/USNR, and other variables. Report 1500-1121 contains monthly and cumulative data on student accessions. This report summarizes trainee accessions by mental groups and the number of qualified and nonqualified persons entering courses based upon minimum ASVAB scores. These data covered a 12-month period from October 1975 to September 1976 which closely matched the TSF data base cited under the preliminary descriptive analysis described above.

ATTRITION COST ANALYSIS

A prescribed remedy for any attrition problem regardless of its magnitude, must be tempered by cost. High attrition percentages do not necessarily mean high attrition cost; low percentage attrition courses may reflect a very large cost due to large throughput and/or a high cost of training. The purpose of this analysis was to determine the magnitude and impact of attrition in terms of what it costs the training community on a per capita and on an aggregate per course basis. It is an attempt to determine the impact of academic attrition in terms of lost training resources. This kind of analysis provides a basis for weighing the potential benefits of various CNET options or policies designed to influence attrition. Courses experiencing the greater attrition cost may have greater potential for payoff, given that options are available for reducing attrition. Courses with high attrition cost and a relatively low number of attrites may be less likely to derive benefits from policies designed to influence attrition.

DATA SOURCE: RESOURCES MANAGEMENT SYSTEM (RMS) PER CAPITA REPORT NUMBER 7, FY 76

This report is derived from the RMS data base. The per capita report is based on an aggregate of RMS costs which includes cost elements such as student and instructor pay and allowances, equipment maintenance and depreciation, and other direct and indirect costs. For any course, the total attrition cost can be calculated by:

$$CTA = \frac{AW}{TW} C_c \quad (9)$$

Where CTA = Total attrition cost

AW = The actual man-weeks of training consumed by attrites

TW = The actual mean weeks of training consumed by all enrollees in a course (determined by multiplying average course length by equivalent graduates)

C_c = Total course cost (in school house cost and trainee cost + out school cost + equipment investment)

CTA is the ratio of man-weeks of training associated with attrites to the total man-weeks of training for a course. To determine the attrition cost attributable to academic and nonacademic reasons, total attrition costs were prorated by percentage of total attrites who were academic or nonacademic attrites from the data of CNET Report 1500-1120, cited previously.

SUMMARY

Four analyses representing four different perspectives on essentially the same data base were performed. The reader should be reminded that the data on which this report is based are characterized by a number of vagaries. Specifically:

- . Although the data of the NITRAS system exhibits substantial reliability, it is still subject to error
- . The classification of an attrite as either academic or nonacademic is made on judgment of circumstances on individual cases. It is difficult to classify borderline cases as academic and often academic attrites are classified as nonacademic attrites
- . CNET Instruction 1540.4 establishes the policy and guidelines on academic attrition. However, local commands have options at their disposal that can mask an attrition problem.

These variations cannot be accounted for in the aggregate data base of this report. The acquisition of an extensively validated data set would have required the expenditure of additional resources with questionable utility for the gains made by such an investment.

SECTION III

RESULTS AND DISCUSSION

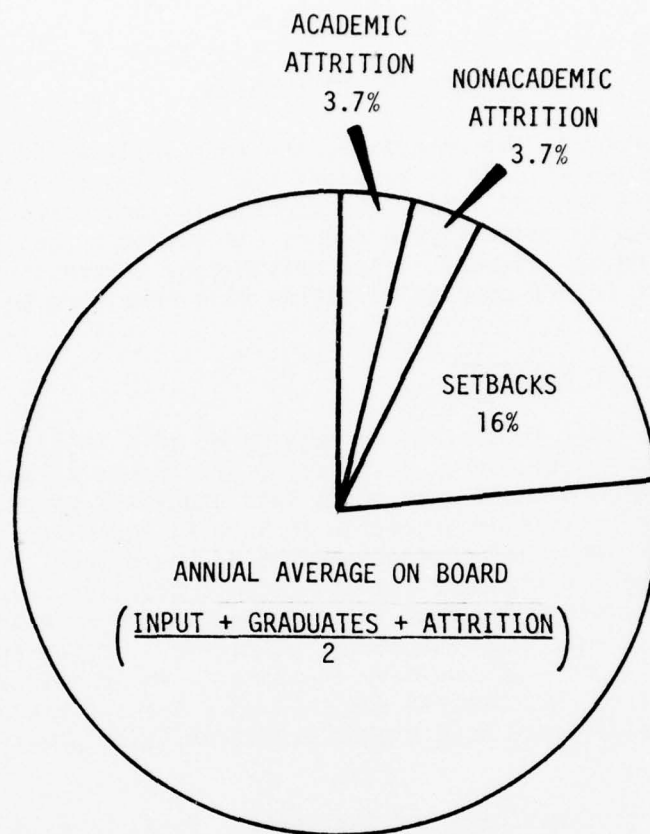
This section presents the results of the four analyses in the same order as described in section II. Other results; e.g., tables of data summaries to support the rationale for the inferences and conclusions discussed in this section, are provided in appendices A and B. As was expected, the results rather than always being univocal, often raised many interesting questions and hypotheses about future courses of action with promising potential for reducing attrition.

PRELIMINARY DESCRIPTIVE ANALYSIS

There were many ways to depict the results of this initial analysis. The methods chosen for presentation in this report are deemed to be most appropriate for displaying the type of data upon which this study was based. To obtain a perspective on the magnitude of attrition in Navy A1 and A3 courses, figure 1 is presented. Shown are total student average on board (AOB) for all A1 and A3 courses, the number of academic and nonacademic attrites, and setbacks during FY 76. It is noteworthy that setbacks constitute more than twice the combined total of academic and nonacademic attrition. In the aggregate, the attrition during this phase of the Navy enlistment (while attending "A" school) is relatively low (i.e., 3.7 percent academic, 3.7 percent nonacademic) whereas individual courses experience much higher attrition (some greater than 25 percent).

Figure 2 presents a histogram of the percent total attrition from A1 and A3 courses. It is noted that 30 courses have zero attrition. Twelve of these zero-attrition courses are language courses which have very small annual inputs (less than or equal to 12) of students who are highly selected. The remaining 18 of these courses can be grouped into Basic Sonar Operator, Submarine Communication Application and Theory Modules (SCAT MOD), Information Specialist, and other introductory courses which have relatively short durations; i.e., the majority of the Basic Sonar Operator and SCAT MOD courses are less than 20 days in length. It would appear that such courses are over before academic problems develop. Eighty-three courses have attrition less than 5 percent while 27 courses have attrition equal to or greater than 10 percent. Ten percent was selected as a threshold for courses to be analyzed in detail, since this percentage is the number most often referred to as a "rule of thumb" by management. The few courses that have attrition greater than 20 percent are EW Operator/Technician (43 percent), Nuclear Power (24 percent), MN (23 percent), and CTR A (21 percent). Appendix A presents a complete list of "A" courses and attrition data.

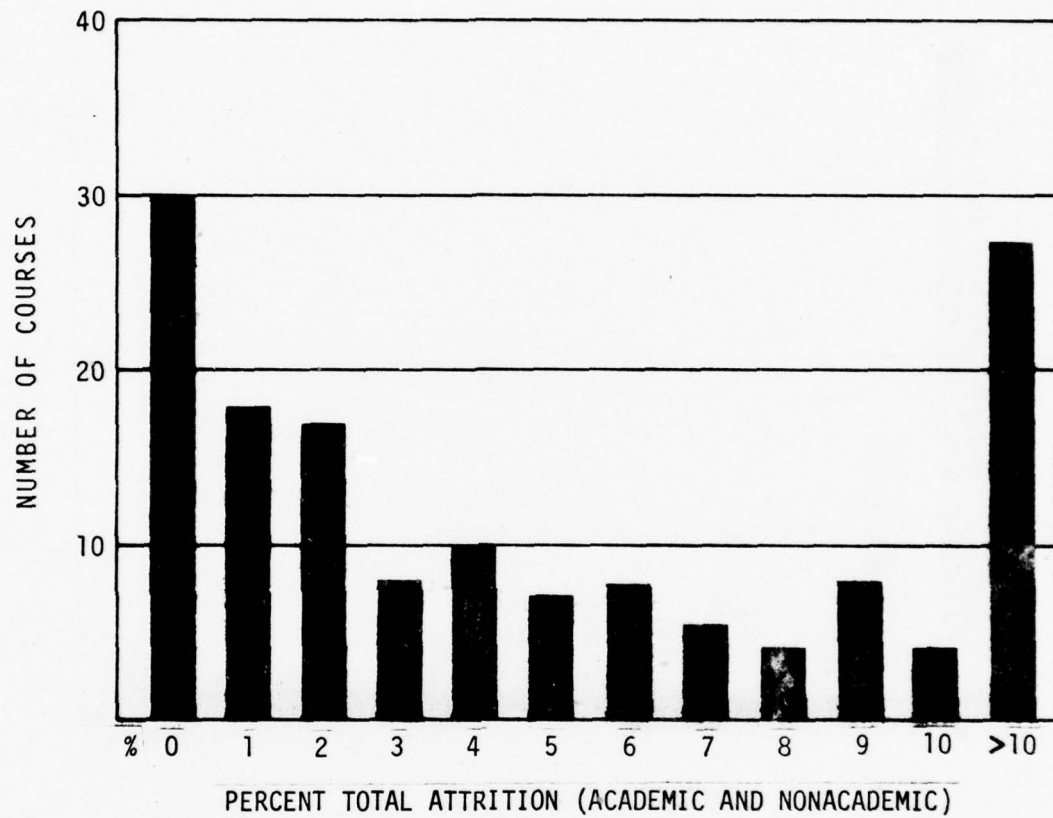
Figure 3 presents a histogram of the distribution of academic attrition of A1 and A3 courses while figure 4 presents the nonacademic attrition for these courses. The total number of courses in figure 2 in the greater than 10 percent category exceeds the combined totals of figures 3 and 4; e.g., 31 courses have greater than 10 percent total attrition whereas in figures 3 and 4 only 13 courses have greater than 10 percent. This is due to adding percentages



ANNUAL AOB →	86,660	
TOTAL ATTRITION →	6,446	7.4%
ACADEMIC ATTRITION →	3,223	3.7%
NONACADEMIC ATTRITION →	3,232	3.7%
SETBACKS →	13,972	16.0%

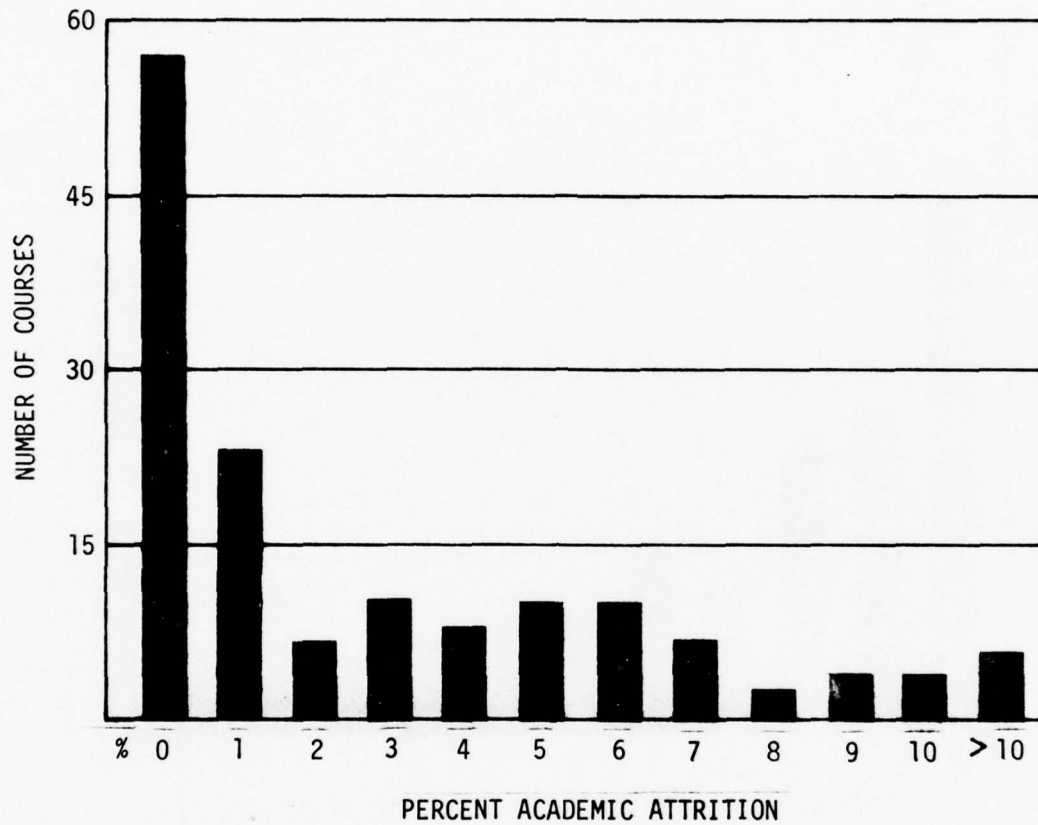
SOURCE: TRAINING SUMMARY FILE (NITRAS) FY76

Figure 1. Relative Proportions of Attrition



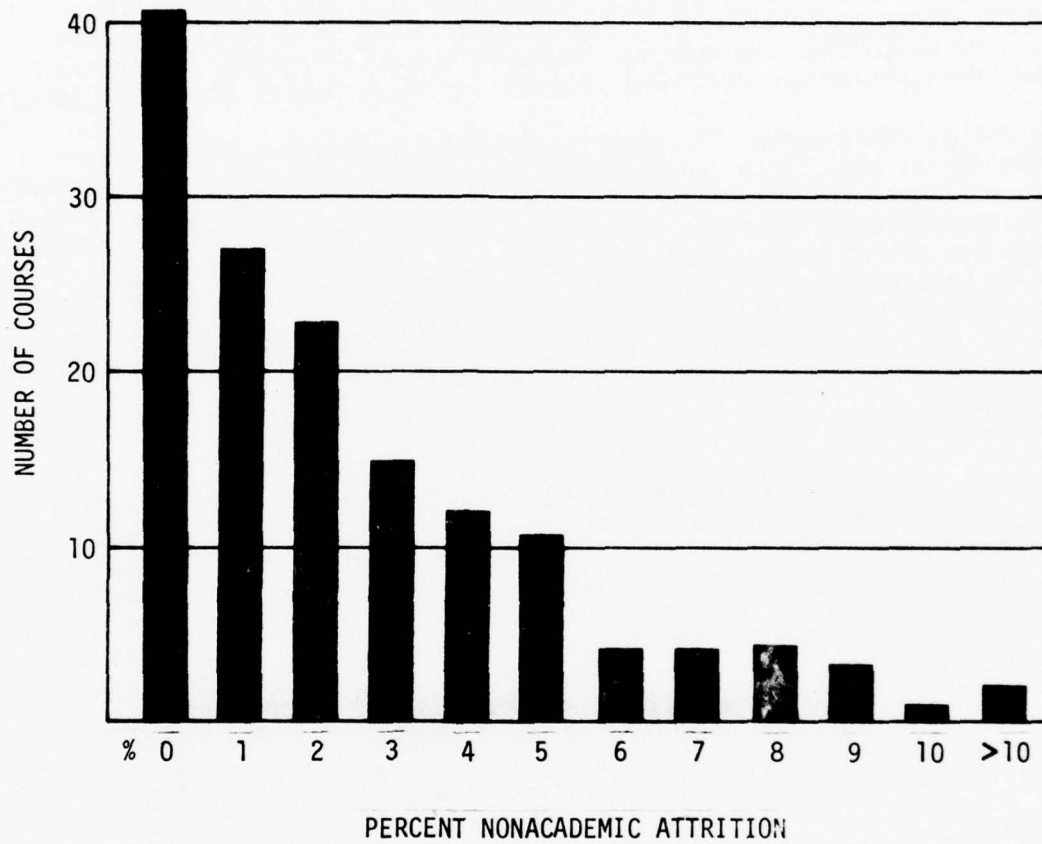
SOURCE: TRAINING SUMMARY FILE (NITRAS)FY76

Figure 2. Distribution of Total Attrition from A1 and A3 Courses



SOURCE: TRAINING SUMMARY FILE (NITRAS)FY76

Figure 3. Distribution of Academic Attrition from A1 and A3 Courses



SOURCE: TRAINING SUMMARY FILE (NITRAS)FY76

Figure 4. Distribution of Nonacademic Attrition from A1 and A3 Courses

of academic and nonacademic attrition where each may be less than 10 percent, but together total greater than 10 percent. Those courses having academic or nonacademic attrition greater than 10 percent are listed in table 1 along with CDP, short title, CIN, and location. The CDP number is the four-digit NITRAS data processing code. The CIN is an alphanumeric code assigned on the following basis: the first letter is the command identifier, the next three digits represent the DOD skill code, with the last four digits representing the sequence within the skill code. All courses listed in table 1 are under the control of CNTECHTRA. The courses (C-100-2014 and C-222-2010) having the "C" command designation are CNTECHTRA courses for the aviation training community.

In summary, total annual "A" school attrition is relatively small when compared to annual AOB. Both subcomponents (academic/nonacademic) are extremely skewed to the right with the highest frequency of courses having zero attrition, and in the aggregate the academic and nonacademic attrition are almost identical. Since there are so few courses with a large amount of academic attrition (equal to or greater than 10 percent), it appears not feasible to establish an overall management policy concerning this attrition but, rather, specific "fixes/cures" must be addressed for individual courses on a course-by-course basis.

CORRELATION ANALYSIS

The results of the above analysis gave an indication of the scope of the problem of academic and nonacademic attrition. To ascertain the interrelationships of the variables that could have some bearing on attrition, available data on 10 variables for 147 A1 and A3 courses were intercorrelated. Table 2 presents the results of this analysis in matrix format. The interrelationships of the variables are of interest in themselves. However, for this study, the main area of interest is the relationship of all variables to academic attrition. The linear correlations between academic attrition and such variables as course length, number of course convenings per year, were limited by the extreme positive skewness (highest frequency of courses having zero attrition) in the distribution of academic attrition (see figure 3).

Column 10 of table 2 shows the correlations between academic attrition and nine other course variables in 147 A1 and A3 courses. Some of the relationships with academic attrition are fairly straightforward when sheer annual student throughput is considered. For example, the correlation between academic attrition and total attrition is .899 for the simple reason that academic attrition contributes to total attrition. And, the correlation between academic attrition and nonacademic attrition is fairly high, .643, because both are highly correlated with annual student input. Input and number of graduates, both fairly highly correlated with each other, correlate with academic attrition .507 and .433, respectively. The correlation between academic attrition and the established CNTECHTRA "standard percentage" for attrition, a moderate .302, is explicable in terms of the standard having been based on historical attrition experience and the impact of the standard as a policy influence in and of itself.

TAEG Report No. 47

TABLE 1. COURSES HAVING ATTRITION (ACADEMIC OR NONACADEMIC)
EQUAL TO OR GREATER THAN 10 PERCENT

CDP	SHORT TITLE	CIN	LOCATION	PERCENT ATTRITION
ACADEMIC ATTRITION				
6178	EW-OP-MAINT/TECH	A-102-0154	Corry	14
6302	CTT-A-PREP	A-231-0023	Corry	10
6301	CTR-A	A-231-0044	Corry	17
6057	YN-A	A-510-0012	Meridian	10
6041	MN A	A-647-0016	Charleston	18
1301	NUC POWER	A-661-0010	Mare Island	18
340S	AVR-A1	C-100-2014	Memphis	10
6278	AC-A1	C-222-2010	Memphis	12
6264	ET-A1-CTM	A-100-0012	Great Lakes	10
1300	NUC POWER	A-661-0010	Orlando	18
NONACADEMIC ATTRITION				
6299	EW-OP-TECH	A-102-0155	Corry	39
6047	QM-A	A-670-0018	Great Lakes	11
6144	RMA	A-202-0014	San Diego	10

CDP - Course Data Processing Code
CIN - Course Identifying Number

TABLE 2. CORRELATIONS WITH ATTRITION

Course Length (Days) (1)	Number of Convenings Per Year (2)	Minimum ASVAB (3)	Number Input For Year (4)	Number Grads For Year (5)	Standard Attrition Percent (6)	Setbacks For Year (7)	Total Attrition For Year (8)	Nonacademic Attrition For Year (9)	Academic Attrition For Year (10)
COURSE LENGTH (1)	.086	.100	-.098	-.059	.149	.305	.199	.063	.293
NUMBER OF CONVENINGS (2)		.181	.216	.193	.082	-.028	.198	.200	.147
MINIMUM ASVAB (3)			-.001	-.005	-.336	-.075	.018	.007	.039
NUMBER INPUT (4)				.984	.186	.573	.749	.832	.507
NUMBER OF GRADUATES (5)					.532	.530	.683	.786	.433
ATTRITION STANDARD % (6)						.374	.300	.228	.302
SETBACKS FY 76 (7)							.396	.477	.213
TOTAL ATTRITION FY 76 (8)								.911	.899
NONACADEMIC ATTRITION FY 76 (9)									.643

The correlation between course length (in days) and academic attrition is .293 and is more highly related to academic attrition than to either total or nonacademic attrition. The most plausible explanation for this seems to be that the longer the course the greater the opportunity for the course to cover more and perhaps more difficult material, resulting in academic attrition. The correlation between setbacks and academic attrition is .213, but its explanation is not as clear as the previous relationships. It could be that setbacks are partially symptomatic of academic problems, or setbacks and academic attrition are not really independent of course length. Course length is correlated about the same with both setbacks and academic attrition, .305 and .293, respectively. Understanding the relationship between setbacks and academic attrition requires much more data than were available for this analysis. In fact, setbacks, setback policy, and the implications of setbacks on the cost of attrition and training in general, should be examined as a separate problem.

The final correlation result to be examined is the relationship between the minimum ASVAB requirement for entering a course and academic attrition. This correlation was extremely low (.039). However, this is understandable when it is recognized that the minimum ASVAB is designed to selectively minimize academic attrition. Thus, the academic attrition that remains is unpredictable (not capable of being correlated) error variance. To this can be added the confounding effect of students being waived into courses; i.e., being accepted without meeting the minimum ASVAB standard. It would appear that the minimum ASVAB levels are valid (Thomas, 1973), but the influence of waivers required that additional data be analyzed. The results of that analysis follow.

WAIVER ANALYSIS

Specific course data from CNET Reports 1500-1120 and 1500-1121 (CNTECHTRA) show considerable course variations in the numbers of qualified vs. nonqualified inputs of trainees and whether or not the trainees become academic failures. The data base for these two reports has not fully matured; data for some courses are for a period as short as 3 months. Thus, 12 complete months of waiver and academic attrition data were not available for all courses. Furthermore, the analysis required the combination of course data from the two reports, sometimes resulting in cases of missing data. All of these anomalies are taken into account in appendix B, which represents a recasting of the data from the two reports into a combined layout which is easier to comprehend than the original report formats.

Individual course data on waivers and academic attrition were analyzed by chi-square tests of the hypothesis that the proportion of qualified attrites was not significantly different than the proportion of unqualified attrites who succumbed to academic attrition. A significant chi-square, at the $p < .05$ level of statistical confidence, was any computed value of the chi-square statistic for a course that equalled or exceeded 3.841. Of the 82 courses for which complete data were available, there were 33 significant chi-squares (see table 3); in other words, the unqualified trainees in these courses had a significantly higher rate of academic attrition.

TABLE 3. COURSES IN WHICH UNQUALIFIED STUDENTS (WAIVERS) ATTRITED
AT SIGNIFICANTLY HIGHER RATES THAN QUALIFIED STUDENTS

<u>CDP</u>	<u>SHORT TITLE</u>	<u>CIN</u>	<u>CHI-SQUARE*</u>
6001	QM-A	A-061-0012	14.6
6002	QM-A	A-061-0012	8.7
6005	SM-A	A-061-0011	12.8
6006	SM-A	A-061-0011	5.2
6015	SURF-ST	A-130-0037	8.4
6041	MN-A	A-647-0016	10.5
6053	CTO	A-580-0016	6.3
6073	ICA	A-623-0012	9.1
6077	MLA	A-790-0010	4.7
6097	ED-A	A-730-0010	5.1
6103	OT-A	A-210-0011	18.6
6115	GMM-A	A-041-0010	15.5
6120	HT	A-780-0035	15.6
6131	DS-A	A-150-0025	9.2
6142	OSA	A-221-0011	24.0
6144	RM-A	A-202-0014	9.4
6178	EW-OP/Maint TECH	A-102-0154	23.3
6239	AVA-AT	C-100-2013	8.5
6242	AVA-TD	C-100-2013	6.6
6244	AFT-AT	C-100-2010	82.2
6246	AFT-AX	C-100-2010	11.2
6267	ETA2-CTM	A-100-0014	4.2
6278	AC	C-222-2010	27.6
6299	EW OP-TECH	A-102-0155	6.5
6301	CTR	A-231-0044	8.2
6302	CTT-PREP	A-231-0023	88.0
6321	CTI-RUSSIAN	A-232-0021	4.4
6501	ADJ	C-601-2010	22.4
6516	AME	C-602-2015	9.1
6520	AG	C-420-2010	12.5
6523	PH	C-400-2011	13.9
6530	ASE	C-602-2019	9.6
6537	AW	C-210-2010	15.4

*Significant Chi-Square = 3.841

CDP - Course Data Processing Code

CIN - Course Identifying Number

In the overall analysis of all courses in appendix B, the following result was observed:

		OUTCOME		
INPUT	QUALIFIED	Nonacademic Attrition & Grads	Academic Attrites	Total
		41,508	2,121	43,629
	NONQUALIFIED	6,593	653	7,246
	TOTAL	48,101	2,774	50,875

The chi-square value for this analysis was 206, indicating a significant effect of waivers on academic attrition.

Column 15 of table B-1 (appendix B) gives the chi-square values for all courses for which data were available. As can be seen, the chi-square values vary widely from 0.1 for BU and AVA-AX to 88.0 for CTT-PREP.

Although the data depicted in appendix B gives only a "snap shot" of 131 courses for periods of time ranging from 1 to 12 months of FY 76, a wealth of information is contained therein that was gathered from a variety of existing documents and reports. One of the main objectives of presenting the data in appendix B is to depict the interrelationship of data elements required to obtain an overview of the variables involved in attrition. It should be noted that several courses listed in appendix A that are found in appendix B (i.e., 340S - AVR A1, 1300 - NUC Power), have missing (not reported) data but are identified for the sake of completeness in comparing the two appendices.

COST ANALYSIS

The data base for this analysis consisted of 147 A1 and A3 courses. From the courses listed in this data base, course cost for 118 courses could be obtained from the RMS cost system. The total cost for the 118 courses during FY 76 was \$254,308,000 which includes all direct and indirect costs associated with the courses. Utilizing equation 9 of section II, page 10, the cost of attrition (academic and nonacademic) was found to be \$15,200,000 for FY 76. Thus, 5.97 percent of the resources applied to these 118 courses was expended on personnel who attrited.

Tables 4 and 5 present frequency distributions for (1) total annual cost per course and (2) the annual cost of attrition per course, both with cumulative numbers and cumulative percents. The most interesting feature of table 4 is that 48 percent of the courses surveyed have an annual cost of less than \$1,000,000, whereas 10 courses had an annual cost in excess of \$6,000,000. Table 5 shows that 72 courses have attrition costs of less than \$50,000, while the attrition costs for 12 courses are more than \$400,000. Another noteworthy feature of table 5 is that there are no courses in the category of \$300,000 to \$400,000.

TABLE 4. DISTRIBUTION OF ANNUAL COST OF COURSES

Cost in Thousands	Number of Courses	Cumulative Number of Courses	Cumulative Percent of Courses
Under 1,000	57	57	48
1,000-1,999	17	74	63
2,000-2,999	13	87	74
3,000-3,999	7	94	80
4,000-4,999	10	104	88
5,000-5,999	4	108	92
Over 6,000	10	118	100

TABLE 5. DISTRIBUTION OF ANNUAL COST OF TOTAL ATTRITION

Cost in Thousands	Number of Courses	Cumulative Number of Courses	Cumulative Percent of Courses
0 - 50	72	72	61
51 - 100	8	80	68
101 - 150	13	93	79
151 - 200	4	97	82
201 - 250	2	99	84
251 - 300	7	106	90
301 - 350	0	106	90
351 - 400	0	106	90
Over 400	12	118	100

While the obtained distributions of FY 76 data on course costs and course attrition costs are useful in presenting an overall picture, tables 6 and 7 show the costs for academic and nonacademic attrition. Again, for tables 6 and 7, data are limited to 118 "A" courses. Both distributions of the annual cost of academic attrition (table 6) and nonacademic attrition (table 7) are very similar. Both are highly skewed in a positive direction toward high costs; i.e., each distribution shows approximately 80 percent of the courses with attrition (academic and nonacademic) cost less than \$100,000. In the aggregate, academic attrition in FY 76 costs the Navy training community approximately \$8,800,000, while the nonacademic attrition costs \$6,400,000. These totals show that although attrition is almost evenly divided between academic and nonacademic (in absolute terms of numbers of attrites), their respective costs are not equal. As percentages of total attrition cost, 58 percent is attributable to academic and 42 percent to nonacademic.

From table 6 it is clear that very few courses have relatively large academic attrition costs. The problem is to determine a threshold for concern. In other words, there is no precise way to determine the cost point at which specific courses warrant a more detailed examination, for whatever remedial purpose. By examining the point at which cumulative academic attrition costs accelerate dramatically in table 6, a threshold of \$150,000 was taken. Given that value as a threshold for concern, 103 courses (87 percent of the "A" courses) have an academic attrition cost of \$2,500,000, 28 percent of the total attrition cost; whereas 15 courses (12.7 percent of the "A" courses) had an academic attrition cost of \$6,300,000, or 72 percent of the academic attrition cost (and 40 percent of the total attrition cost). In essence, the threshold for academic attrition costs of concern appears to be those courses with an academic attrition cost of \$150,000 per year (see figure 5).

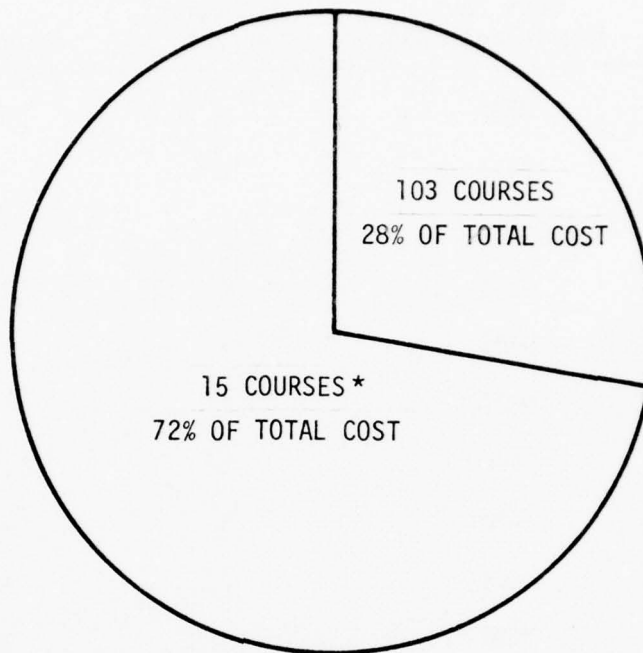
Table 8 delineates by CDP and short title the 15 courses which have an annual academic attrition cost greater than \$150,000. This table also presents cost per equivalent graduate, percentage academic attrition, throughput, chi-square values of qualified/nonqualified trainees experiencing academic attrition, and mean values of each variable for all the courses. The threshold of \$150,000 was selected utilizing the information of table 5; i.e., 12.7 percent of the courses fell within this domain constituting a majority of the expenditures for academic attrition. Three parameters were selected for presentation in table 8 because high academic attrition cost may be attributed to one or more of these factors. For example, EW OP/Maint Tech (CDP 6178) was high, relative to the mean value, cost/equivalent graduate and high academic attrition percentage, but had low throughput. PN-A (CDP 6102), however, has high throughput and academic attrition percentage with relatively low cost per equivalent graduate. If and when attempts are made to lower the cost of academic attrition, it is recommended that the 15 courses identified in table 8 be subjected to the initial analysis. Analysis of the mean values for all courses of table 8 reveals an academic attrition percentage greater than the mean value of the 118 courses in the overall analyses. However, several of the courses have cost per equivalent graduate or throughput less than the mean values of the 118 courses. Therefore, even though all three parameters (cost per equivalent graduate, academic attrition rate, and throughput) influence the cost of academic attrition, the academic attrition percentage is considered to be the

TABLE 6. ANNUAL COST OF ACADEMIC ATTRITION

Cost in Thousands	Number of Courses	Cumulative Number of Courses	Cumulative Percent of Courses
0 - 50	85	85	72
51 - 100	10	95	81
101 - 150	8	103	87
151 - 200	3	106	90
201 - 250	2	108	92
251 - 300	1	109	92
301 - 350	2	111	94
351 - 400	3	114	97
Over 400	4	118	100

TABLE 7. ANNUAL COST OF NONACADEMIC ATTRITION

Cost in Thousands	Number of Courses	Cumulative Number of Courses	Cumulative Percent of Courses
0 - 50	82	82	68
51 - 100	16	98	83
101 - 150	7	105	89
151 - 200	4	109	92
201 - 250	4	113	96
251 - 300	1	114	97
301 - 350	2	116	98
351 - 400	1	117	99
Over 400	1	118	100



* COST > \$150,000 PER ANNUM

Figure 5. Academic Attrition Costs Proportions Attributable to Courses above or below \$150,000 Threshold for Concern.

TABLE 8. COURSES WITH ACADEMIC ATTRITION COST GREATER THAN \$150,000

CDP	Short Title	Cost per Equivalent Grad.	Academic Attrition Percent	Throughput	Chi-Square***
6102	PN-A	2387	9	1103	.579
6057	YN-A	2435	10	1286	3.06
1301	NUC POWER	8559	18	1700	*
6239	AVA-AT	4554	6	1523	8.459
6278	AC-A1	8921	12	664	27.588
6523**	PH-LEVEL 1	4627	5	352	13.920
6263	ET-A1-ETN	2540	5	1274	.320
6265	ET-A1-ETR	2540	5	1488	.751
6027	FTA-A	3583	7	1945	2.431
6144	RMA	4555	8	3421	9.361
1300	NUC POWER	8559	18	560	*
6065	MUSIC BASIC	5769	9	860	*
6178	EW-OP-MAINT TECH	17,503	14	339	23.310
6302	CTT-A-PREP	4157	10	732	88.027
6301	CTR-A	8347	17	690	8.183
Mean for 15 Courses		5936	10.2	1196	
Mean Value for 118 Courses		3636	3.45	675	

* Waiver data unavailable.

** To obtain academic attrition costs, RMS-supplied actual attrition weeks were used. In the case of Ph-level 1, RMS attrition weeks did not correspond with NITRAS attrition data.

*** Significant Chi-Square = 3.841
CDP - Course Data Processing Code

most important variable to study. The last column of this table lists the chi-square for each course. The relationship between waivers and academic attrition is positive and significant for 7 of the 15 courses, chi-square equal to or greater than 3.841.

In general, the higher the cost of the course due to large throughput and higher cost per equivalent graduate, the higher the cost of attrition. To negate this scale factor, the attrition cost as a percentage of course cost was analyzed. Tables 9 through 11 show the frequency distributions of total attrition cost, academic attrition cost, and nonacademic attrition cost as percentages of course cost, respectively, for the 118 courses. Again, each distribution is positively skewed from the 1 percent level to the higher levels of percentage of total course cost. It is of interest to note from table 9 that 14 courses have attrition cost equal to or greater than 10 percent of course cost. Whereas in tables 10 and 11 only five and one course(s), respectively, exceed 10 percent of the course cost. This discrepancy can be explained by the combinatorial aspects of the data. It is also of interest to note from table 10 that over half of the courses have an academic attrition-cost to course-cost ratio less than or equal to 1 percent. The courses that have this ratio greater than 10 percent are Nuclear Power courses, CTR, Ph level 1, and ET CTM. Figure 6 was constructed from the data in table 10; from this chart, the positive skewness of the data is quite apparent. For the majority of the courses analyzed, the cost of academic attrition is a very small percentage of the overall cost of a course. The obvious implication for where to focus any effort to reduce academic attrition should be only in those few extremely high attrition courses. In the few courses with relatively high attrition costs the opportunity to improve and the payoff are maximized. The cost of exploring attrition reducing policies and practices elsewhere would not be as likely to equal or exceed the benefit.

TABLE 9. DISTRIBUTION OF THE ATTRITION COST
AS A PERCENTAGE OF COURSE COST

Percent Attrition Cost Course Cost	Number of Courses	Cumulative Number of Courses	Cumulative Percent of Courses
Under 1	41	41	35
1.0 to 1.9	14	55	47
2.0 to 2.9	16	71	60
3.0 to 3.9	14	85	72
4.0 to 4.9	6	91	77
5.0 to 5.9	7	98	83
6.0 to 6.9	1	99	84
7.0 to 7.9	0	99	84
8.0 to 8.9	1	100	85
9.0 to 9.9	4	104	88
10.0 to 10.9	2	106	90
11.0 to 11.9	2	108	92
12.0 to 12.9	5	113	96
13.0 to 13.9	0	113	96
14.0 to 14.9	2	115	97
15 & Above	3	118	100

TAEG Report No. 47

TABLE 10. DISTRIBUTION OF THE ACADEMIC ATTRITION COST
AS A PERCENTAGE OF COURSE COST

<u>Percent Academic Attrition Course Cost</u>	<u>Number of Courses</u>	<u>Cumulative Number of Courses</u>	<u>Cumulative Percent of Courses</u>
Under 1	62	62	53
1.0 - 1.9	21	83	70
2.0 - 2.9	12	95	81
3.0 - 3.9	4	99	84
4.0 - 4.9	1	100	85
5.0 - 5.9	0	100	85
6.0 - 6.9	6	106	90
7.0 - 7.9	4	110	93
8.0 - 8.9	1	111	94
9.0 - 9.9	2	113	96
10 & Above	5	118	100

TABLE 11. DISTRIBUTION OF THE NONACADEMIC COST
AS A PERCENTAGE OF COURSE COST

<u>Percent Nonacademic Attrition Course Cost</u>	<u>Number of Courses</u>	<u>Cumulative Number of Courses</u>	<u>Cumulative Percent of Courses</u>
Under 1	60	60	51
1.0 - 1.9	21	81	69
2.0 - 2.9	19	100	85
3.0 - 3.9	4	104	88
4.0 - 4.9	7	111	94
5.0 - 5.9	1	112	95
6.0 - 6.9	2	114	97
7.0 - 7.9	1	115	97
8.0 - 8.9	1	116	98
9.0 - 9.9	1	117	99
10 & Above	1	118	100

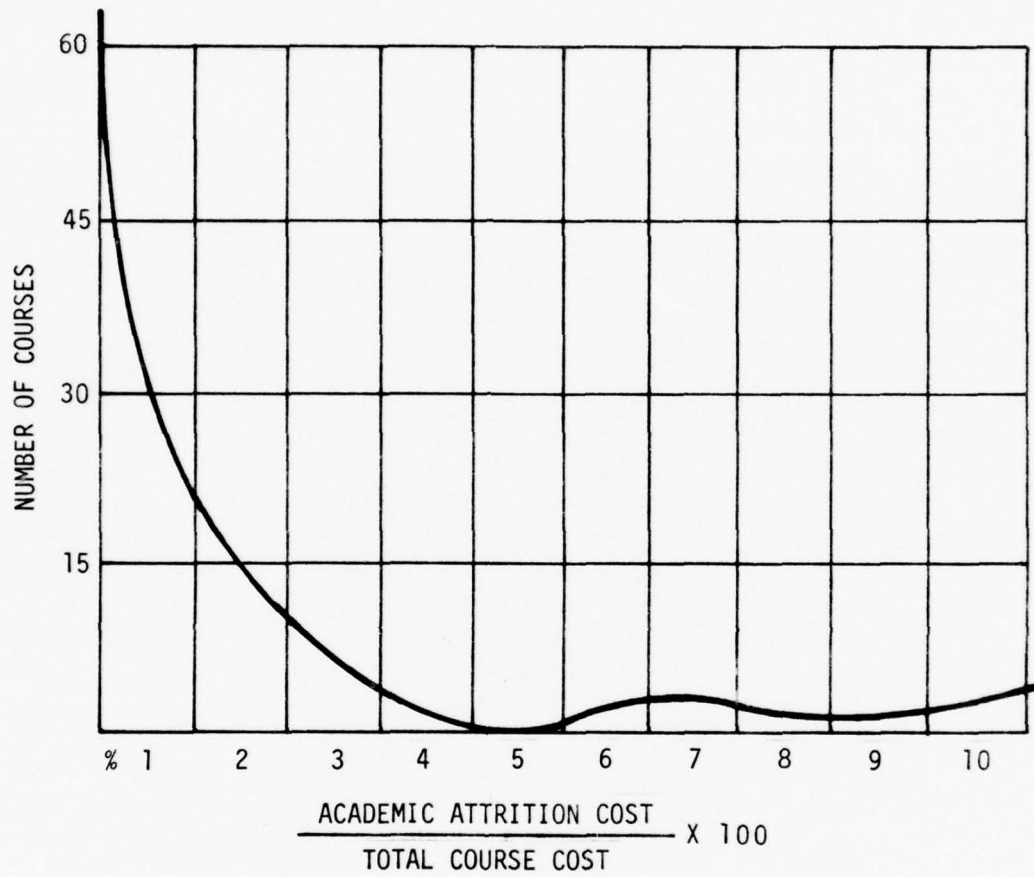


Figure 6. Academic Attrition Cost as a Percent of Total Course Cost

SECTION IV

SUMMARY OF FINDINGS AND RECOMMENDATIONS FOR FUTURE CONSIDERATIONS

This section presents the significant findings of this study with comments as appropriate. The findings are organized by attrition levels, attrition cost, and causes of attrition. A series of recommendations is also presented. The order in which the findings are presented does not represent a priority in which they should be addressed for correction of the problem, order of difficulty, or cost to be saved or expended. For each item the specific page(s) of the report is cited for convenience of the reader who wishes more detail.

Extent and Patterns of Attrition in A1 and A3 Courses

- . Total attrition in 147 A1 and A3 courses was 7.4 percent (6,446) of total AOB (86,660) during FY 76 (pages 13, 14, 41).
- . Compared with attrition from the Navy prior to the end of obligated service (39 percent) academic and nonacademic attrition represents a far smaller percentage. In fact the bulk of attrition from A1 and A3 courses represents virtually no direct attrition from the Navy (page 4).
- . Academic attrition and nonacademic attrition in the aggregate have the same amount of attrites; i.e., 3.7 percent (pages 13, 14).
- . Individual courses vary widely in the percentage of academic and non-academic attrites. No inferences can be made from individual courses (page 41).
- . Fourteen percent (7,246 ÷ 50,875) of the inputs to the 147 A1 and A3 courses are waived; i.e., do not meet minimum ASVAB course entrance requirements. These percentages include waived personnel under special categories such as racial minority and reading difficulty (page 23).
- . Waived trainees produce significantly greater academic attrition than qualified trainees (page 21).
- . Ten courses have academic attrition equal to or greater than 10 percent. Only three courses have nonacademic attrition equal to or greater than 10 percent (page 13).

Overall and Course Specific Costs of Academic Attrition

- . Total cost for 118 courses analyzed in this study for FY 76 was \$254,308,000. Attrition constitutes \$15,200,000 of this total (page 23).

TAEG Report No. 47

- . Academic attrition cost for the 118 courses analyzed is \$8,800,000 per year whereas nonacademic attrition is \$6,400,000 (page 25).
- . In the aggregate, academic attrition costs are greater than non-academic costs because a relatively few high cost courses have far greater academic than nonacademic attrites (page 25).
- . Fifteen courses account for more than two-thirds of all academic attrition cost (page 25).
- . Fifteen courses have academic attrition costing more than \$150,000 per year (page 25).
- . Five courses have attrition cost greater than 10 percent of the course cost (page 29).

Factors Associated with Academic Attrition

- . Variables such as course length, throughput, and number of convenings are positively related to academic attrition (page 18).
- . Thirty-three courses show significant course waiver effect (page 21).
- . Seven of the 15 most costly courses show a significant course waiver effect (page 29).
- . Setbacks; i.e., trainees who repeat some portion of a course, represent a potentially greater area of uncertainty than course attrition. Setbacks represent 16 percent of AOB. Their cost and attrition implications are for the most part unknown (page 13).

Recommendations

- . Careful in-depth monitoring and scrutiny should be continued by CNTECHTRA of all courses, and TAEG's assistance should be requested on specific attrition problems.
- . Special attention should be given to schools that have high waivers and high percentage of waiver failures.
- . Investigate "C" courses to ascertain if attrites that fail should have been attrited from "A" school.
- . Investigate entire pipeline of a rating to ascertain where and when personnel attrite. A hypothesis is that personnel who attrite from "C" schools do poorly in "A" schools. It is costly to train personnel in a series of courses (i.e., Basic Electricity and Electronics supplies input to Electronic Technician "A" school which supplies inputs to "C" school) and have them attrite after completion of "A" school.
- . Investigate courses that have high attrition for a possible two-track system. One track would continue to turn out graduates based on current time and material whereas the other track would increase the course length.
- . Perform detailed analyses on waivers to ascertain if waiver score point spread should be tightened.
- . Investigate further the relationship between setbacks and attrition. Revise/establish setback policy.
- . Investigate when and where setback and/or failure occur during selected courses (i.e., time, subject matter, etc.).
- . Perform analysis on setbacks from the following perspectives:
 - (a) Academic setbacks
 - (b) Nonacademic setbacks
 - (c) Setback policy from individual course, school and CNET in the aggregate
 - (d) Cost of setbacks
- . Identify the conditions under which academic failures leave the Navy.

POSTNOTE

Many individuals or activities are well aware of their own specific attrition problem. Beyond their own organization, however, most individuals have preconceived notions of the overall attrition situation. This is the first known attempt to provide a detailed examination of attrition for A1 and A3 of Navy technical "A" schools. The challenge of this study was to present a composite of the extremes of attrition in technical training. In accomplishing this, it must be stressed how crucial the availability of an attrition data base in NITRAS and attrition cost data in the RMS were to support analytical work of the kind reported here. The analytical approaches documented here for FY 76 data will continue to be valid when applied to FY 77 data and beyond.

BIBLIOGRAPHY

- Bell, D. B. and Holz, R. F. Summary of ARI research on military delinquency. Research Report 1185. 1975. U.S. Army Research Institute for the Behavioral and Social Sciences. Arlington, Virginia.
- Canadian Forces Personnel Applied Research Unit. Canadian Forces Base Toronto, Downsview, Ontario, M3K 1Y6. Why do they leave? Attrition, 1975. Report No. 75-4. September 1975.
- Goodstadt, B. E. and Glickman, A. S. The current status of enlisted attrition in the U.S. Navy and in the U.S. Marine Corps and the search for remedies. Final Report. November 1975. American Institutes for Research, Washington, D.C. 20016. Prepared for Office of Naval Research under Contract No. N00014-76-C-0266.
- Gunderson, E. K. E. and Hoiberg, A. Personnel effectiveness in the all volunteer Navy. A study from the Naval Health Research Center, San Diego, CA 92152, presented at Department of Defense, Office of Naval Research Conference on First Term Enlisted Attrition, Xerox International Training Center, Leesburg, Virginia, 4-7 April 1977.
- Lockman, R. F., Jehn, C., and Shughart, W. F. Models for estimating premature losses and recruiting district performance. Professional Paper No. 142. 1976. Center for Naval Analyses, Arlington, Virginia.
- Lockman, R. F. SCREEN test and projection. Memorandum June 1976. Institute of Naval Studies, Center for Naval Analyses, Arlington, Virginia 22209
- NITRAS Reports Manual. CNET P1510/2 (11-75). Naval Education and Training Command, Naval Air Station, Pensacola, Florida 32508
- Plag, J. A. Predicting the effectiveness of Naval enlistees. San Diego, California: U.S. Navy Medical Neuropsychiatric Research Unit, Tables and Summary of a Report prepared for Briefings at the Navy Department, Washington, D.C. May 1968.
- Sands, W. A. Development of a revised odds for effectiveness (OFE) table for screening male applicants for Navy enlistment. April 1976. Navy Personnel Research and Development Center, San Diego, California 92152
- Thomas, Patricia J. Basic test battery selection composite effectiveness during 1971. Navy Personnel Research and Development Center, San Diego, California 92152. Letter report for Chief of Naval Training, August 1973.

APPENDIX A

ATTRITION DATA FOR CLASS A1 AND A3 COURSES

CDP	COURSE SHORT TITLE		C I N		LOCATION	COURSE LENGTH (Days)	NUMBER OF CONVENINGS	TYPE OF COURSE*	MINIMUM ASVAB	INPUT	GRADUATES	ACADEMIC ATTRITION (#)	ACADEMIC ATTRITION (%)	NON-ACADEMIC ATTRITION (#)	NON-ACADEMIC ATTRITION (%)	TOTAL
130E	NUC PWR	A	661	0010	ORLANDO	166	1	1	225	205	205	-	-	-	-	8
340S	AVR-A1	C	100	2014	MEMPHIS	33	12	1	225	617	527	60	10	23	4	3
532R	MALRE-A	C	680	2015	LAKEHURST	40	2	1	96	103	74	3	3	0	0	3
541U	SQS 53 OB BASIC	A	130	0103	S. DIEGO	19	AR	1	225	15	0	0	0	0	0	0
1300	NUC PWR	A	661	0010	BN/ORL	166	4	1	225	324	795	111	18	35	6	1
1301	NUC PWR	A	661	0010	MARE	166	3	1	225	1998	1403	336	18	142	8	4
2053	CTT-FLR-11/15 OPS	A	231	0024	CORRY	40	50	0	100	123	115	0	0	1	1	1
3197	CTT-ELINT OP	A	231	002A	CORRY	68	50	0	100	95	101	1	1	1	1	1
3522	AVCC-A1	C	780	2010	MEMPHIS	26	7	1	225	160	175	0	0	3	2	3
3585	BASHEL-A1	C	600	2010	MEMPHIS	42	13	1	193	755	752	15	2	23	3	3
3806	ET SEIR	A	104	0012	G. LAKES	54	13	1	225	585	590	0	0	12	2	1
5261	SCAT-MOD-2	A	100	0036	N. LONDON	26	12	1	100	92	76	6	7	4	5	1
5309	SCAT-MOD-1	A	100	0035	N. LONDON	26	12	1	100	183	155	9	5	7	4	1
6001	QMA	A	061	0012	ORLANDO	40	23	1	101	546	548	5	1	0	0	1
6002	QMA	A	061	0012	S. DIEGO	40	4	1	101	341	334	7	2	7	2	1
6005	SM-A	A	061	0011	ORLANDO	40	23	1	105	487	458	19	4	5	1	2
6006	SM-A	A	061	0011	S. DIEGO	40	4	1	105	299	273	26	9	6	2	3
6015	SURF-ST-CLASS-A	A	130	0037	S. DIEGO	40	45	1	225	991	936	39	4	10	1	4
6020	CTA-A	A	510	0015	CORRY	57	13	0	163	223	216	11	5	4	2	1
6025	GMT-A	A	644	0014	TRA GRU PAC	61	3	1	156	299	264	17	6	9	3	2
6027	FTA-A	A	113	0010	G. LAKES	75	13	1	225	1973	1918	141	7	120	6	2
6034	TM-SS-TORP-OP	A	123	0127	ORLANDO	54	6	1	96	392	445	4	1	4	1	8
6036	TM-OP-A/S-TORP	A	123	0127	ORLANDO	40	6	1	96	237	238	0	0	2	1	2
6041	MN/A	A	647	0016	CHAS	96	4	1	156	187	147	33	18	9	5	4
6046	IMA	A	670	0010	G. LAKES	131	13	0	163	101	79	6	6	8	8	1
6047	QM-A	A	670	0018	G. LAKES	120	13	0	153	38	79	4	5	10	11	1
6053	CTO-A	A	580	0016	CORRY	117	13	0	105	585	620	31	5	18	3	5
6057	YN-A	A	510	0012	MERIDIAN	48	13	0	163	1301	1272	135	10	107	8	2
6059	SK CLASS A	A	551	0014	MERIDIAN	47	13	1	105	1396	1618	46	3	15	1	6
6061	DK-A	A	542	0011	MERIDIAN	82	4	1	105	229	257	10	4	2	1	1
6063	INFO SPEC JO A1	A	570	0011	B. HARBOR	75	16	1	163	86	90	0	0	0	0	0
6065	MUSIC BASIC	A	450	0010	L. CREEK	106	6	1	100	938	781	81	9	62	7	1
6068	MR/A	A	702	0019	S. DIEGO	80	7	1	156	543	549	34	6	11	2	4
6070	EM/A	A	662	0016	G. LAKES	59	13	1	156	1349	1322	13	1	27	2	4
6071	EM/A	A	662	0016	S. DIEGO	59	50	1	156	1212	1185	0	0	24	2	2
6073	IC-A	A	623	0012	S. DIEGO	61	13	1	156	1168	1188	0	0	12	1	1
6076	PM-A	A	790	0012	S. DIEGO	138	1	1	156	53	52	4	7	1	2	5
6077	ML-A	A	790	0010	S. DIEGO	96	1	1	156	51	38	3	7	1	2	4
6078	EA-A	A	412	0010	PT. HUE	81	1	1	105	34	51	0	0	1	2	1
6079	CE-A	A	721	0018	PT. HUE	58	2	1	156	159	193	2	1	4	2	5

* 0 = self paced
1 = not self paced

2

TABLE A-1. ATTRITION DATA FOR CLASS
A1 AND A3 COURSES

MINIMUM ASVAB	INPUT	GRADUATES	ACADEMIC ATTRITION (#)	ACADEMIC ATTRITION (%)	NON-ACADEMIC ATTRITION (#)	NON-ACADEMIC ATTRITION (%)	TOTAL ATTRITION (#)	TOTAL ATTRITION (%)	STANDARD ATTRITION (%)	SETBACKS (#)	SETBACKS (%)	RMS COST CODE	TOTAL COURSE COST (000's)	COST PER EQUIVALENT GRAD	ACADEMIC ATTRITION COSTS (000's)	NON-ACADEMIC ATTRITION COSTS (000's)	TOTAL ATTRITION COST (000's)
225	205	205	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
225	617	527	60	10	23	4	80	13	5	149	23	98GB	1004.8	1513	83.8	33.5	117.3
96	103	74	3	3	0	0	3	3	10	1	1	9PDK	379.7	3651	9.1	0	9.1
225	15	0	0	0	0	0	0	0	0	0	0	9SDN	30.5	2030	0	0	0
225	324	795	111	18	35	6	145	23	0	0	0	9YBC	6342.3	8559	939.4	313.1	952.5
225	1998	1403	336	18	142	8	464	24	0	0	0	9QBC	6400.7	8559	677.5	301.1	978.5
100	123	115	0	0	1	1	1	1	5	40	29	9QED	255.4	2202	0	1.5	1.5
100	95	101	1	1	1	1	2	2	5	71	53	9QES	47.8	-	-	-	-
225	160	175	0	0	3	2	3	2	8	2	1	9AGB	478.1	1568	0	5.9	5.9
193	755	752	15	2	23	3	39	5	10	79	10	9ACF	1606.7	2457	15.9	23.8	39.7
225	585	590	0	0	12	2	12	2	5	116	18	9DCA	1913	5960	0	5.2	5.2
100	92	76	6	7	4	5	10	11	20	0	0	-	-	-	-	-	-
100	183	155	9	5	7	4	16	9	20	0	0	-	-	-	-	-	-
101	546	548	5	1	0	0	11	2	12	22	4	9CBB	930.5	1512	6.8	0	6.8
101	341	334	7	2	7	2	14	4	10	24	7	9DBP	511.6	1560	7.8	7.8	15.6
105	487	458	19	4	5	1	24	5	10	77	15	9CBC	858.9	1577	24.2	6.0	30.2
105	299	273	26	9	6	2	37	12	10	37	12	9DDR	458.6	1587	19.8	4.4	24.2
225	991	936	39	4	10	1	49	5	10	29	4	9SDB	3105.5	2412	113.2	28.3	141.5
163	223	216	11	5	4	2	16	7	15	231	69	9QCF	615.4	277.2	38.4	15.4	53.8
156	299	264	17	6	9	3	27	9	4	6	2	-	-	-	-	-	-
225	1973	1918	141	7	120	6	248	12	9	226	11	9CBA	10831.6	3583	226.7	194.3	421
96	392	445	4	1	4	1	8	2	5	17	4	9ABB	889	1902	8.0	8.0	16.
96	237	238	0	0	2	1	2	1	5	5	2	9ABB	441	1902	0	7.9	7.9
156	187	147	33	18	9	5	43	23	12	64	32	9CBB	1256.6	6868	88.7	24.6	113.3
163	101	79	6	6	8	8	14	14	10	0	0	9EBA	529.2	4725	9.6	12.9	22.5
153	88	79	4	5	10	11	15	16	10	0	0	9ECA	394.0	4582	4.6	10.0	14.6
105	585	620	31	5	18	3	57	9	17	607	67	9QCB	2945.4	5077	91.3	54.8	146.1
163	1301	1272	135	10	107	8	239	17	19	454	30	9SCD	2659.1	2435	246.6	97.2	343.8
105	1396	1618	46	3	15	1	62	4	8	62	4	9SBB	3008.8	2096	1.6	.5	2.1
105	229	257	10	4	2	1	12	5	8	5	2	9SBC	954.7	3604	1.9	.5	2.4
163	86	90	0	0	0	0	0	0	1	0	0	-	-	-	-	-	-
100	938	781	81	9	62	7	139	15	22	139	15	9KBB	4840.4	5769	290.6	226.0	516.6
156	543	549	34	6	11	2	46	8	14	108	18	9BBB	1772.1	2885	30.6	10.2	40.8
156	1349	1322	13	1	27	2	41	3	10	201	14	9GBA	3720.3	2501	33.8	67.6	101.4
156	1212	1185	0	0	24	2	24	2	4	49	4	9CCB	2555.1	2129	0	21.3	21.3
156	1168	1188	0	0	12	1	12	1	6	219	17	9CDB	2358.8	2233	0	15.9	15.9
156	53	52	4	7	1	2	5	9	14	4	7	9BHD	321.6	7482	5.8	1.7	7.5
156	51	38	3	7	1	2	4	9	10	0	0	9BHB	218.8	5919	5.8	1.7	7.5
105	34	51	0	0	1	2	1	2	7	0	0	9ACB	247.9	4679	0	1.6	1.6
156	159	193	2	1	4	2	5	3	4	2	1	9CBB	701.6	3508	2.8	6.7	9.5

CID	COURSE SHORT TITLE		C I N	LOCATION	COURSE LENGTH (Days)	NUMBER OF CONVENINGS	TYPE OF COURSE *	MINIMUM ASVAB	INPUT	GRADUATES	ACADEMIC ATTRITION (#)	ACADEMIC ATTRITION (%)	NON-ACADEMIC ATTRITION (#)	NON-ACADEMIC ATTRITION (%)	TOTAL ATTRITION (#)
6081	BU-A	A	710 0010	PT. HUE	66	3	1	150	199	217	0	0	4	2	4
6082	SW-A	A	711 0015	PT. HUE	61	2	1	150	109	75	1	1	5	5	6
6083	UT-A	A	720 0012	PT. HUE	79	2	1	150	112	107	0	0	3	3	3
6093	TM SUB/TORP TECH	A	123 0127	ORLANDO	40	6	1	96	150	206	0	0	2	1	2
6097	EO-A	A	730 0010	PT. HUE	61	3	1	150	258	282	3	1	8	3	11
6102	PN-A	A	500 0014	MERIDIAN	48	13	0	110	1074	1133	104	9	45	4	153
6103	OT-A	A	210 0011	DET-KW	68	16	1	258	392	360	31	8	11	3	44
6106	HT-A2	A	700 0010	S. DIEGO	60	64	1	156	2363	2614	0	0	0	0	25
6108	FT-A2	A	113 0019	G. LAKES	96	6	1	225	916	869	9	1	27	3	36
6115	GM-A	A	041 0010	G. LAKES	82	13	1	163	1470	1129	94	7	108	8	196
6118	SQQ 23 PAIR OP-BAS	A	130 0097	S. DIEGO	54	AR	1	225	63	53	0	0	0	0	0
6119	HT-A1	A	780 0035	S. FRAN	26	42	0	156	1101	1087	0	0	11	1	11
6120	HT-A1	A	780 0035	PHIL	22	13	0	156	1402	1510	0	0	15	1	15
6121	CTI-A2-THAI	A	232 0043	GOODFELLOW	28	1	1	206	1	1	0	0	0	0	0
6122	CTI-A2-HEBREW	A	232 0041	GOODFELLOW	56	1	1	206	7	10	0	0	0	0	0
6123	CTI-A2-ARABIC	A	232 0042	GOODFELLOW	70	1	1	206	12	10	0	0	0	0	0
6125	MS-A	A	800 0013	S. DIEGO	54	21	1	100	2427	2363	48	2	0	0	48
6126	QRTR-MSTR-BASE	F	772 0010	N. LONDON	33	6	1	101	81	71	3	4	7	9	10
6131	DS-A	A	150 0025	M. I.	180	7	1	225	314	387	33	9	4	1	37
6135	ET A-3R	A	104 0010	G. LAKES	26	13	1	225	1151	1163	12	1	23	2	2
6137	ET-A-3N	A	102 0010	G. LAKES	33	13	1	225	846	874	17	2	26	3	35
6140	CTI-A2-FRENCH	A	232 0040	GOODFELLOW	28	1	1	206	21	21	0	0	0	0	0
6142	OSA	A	221 0011	G. LAKES	96	50	1	110	2244	2140	67	3	112	5	183
6144	RMA	A	202 0014	S. DIEGO	49	65	1	100	3704	3139	285	8	360	10	636
6146	PLRS-POS-ELECT-A	A	121 0142	D. NECK	117	13	1	225	897	978	78	8	68	7	141
6149	CMA	A	610 0022	PT. HUE	94	3	1	101	144	170	0	0	2	1	2
6161	CTM-A	A	102 0109	CORRY	84	13	0	225	285	215	3	1	0	0	3
6167	DPA	A	531 0016	S. DIEGO	54	7	1	110	424	401	17	4	0	0	17
6172	STS-CLASS A	A	130 0029	S. DIEGO	40	8	1	225	399	431	13	3	8	2	21
6178	EW-OP-MAINT/TECH	A	102 0154	CORRY	320	7	0	110	592	85	51	14	10	3	63
6182	ASH A1	C	602 2023	MEMPHIS	65	6	1	156	167	169	2	1	3	2	5
6183	ASM-A1	C	602 2024	MEMPHIS	65	6	1	156	185	182	6	3	7	4	13
6184	INTRO-WELD	A	700 0011	S. DIEGO	31	3	1	156	3	4	0	0	0	0	0
6193	MK-111-OP-BAS	A	130 0088	S. DIEGO	12	AR	1	225	119	125	1	1	0	0	1
6194	MK-114-OP-BAS	A	130 0083	S. DIEGO	12	AR	1	225	675	711	0	0	0	0	0
6195	SQS-DG-OP-BAS	A	130 0084	S. DIEGO	19	AR	1	225	362	371	0	0	0	0	4
6196	SQS-35V-38-OPBAS	A	130 0085	S. DIEGO	12	AR	1	225	60	64	1	2	0	0	1
6197	SQS-26-BX-OPBAS	A	130 0092	S. DIEGO	19	AR	1	225	71	75	0	0	0	0	0
6198	SQS-26-CX/AXR	A	130 0086	S. DIEGO	19	AR	1	225	344	353	0	0	4	1	4
6206	SH-A	A	823 0012	NORFOLK	26	7	1	100	573	589	42	7	12	2	48

* 0 = self paced
1 = not self paced

TABLE A-1. ATTRITION DATA FOR CLASS
A1 AND A3 COURSES (continued)

COURSE*	MINIMUM ASVAB	INPUT	GRADUATES	ACADEMIC ATTRITION (#)	ACADEMIC ATTRITION (%)	NON-ACADEMIC ATTRITION (#)	NON-ACADEMIC ATTRITION (%)	TOTAL ATTRITION (#)	TOTAL ATTRITION (%)	STANDARD ATTRITION (%)	SETBACKS (#)	SETBACKS (%)	RMS COST CODE	TOTAL COURSE COST (in 000's)	COST PER EQUIVALENT GRAD	ACADEMIC ATTRITION COSTS (000's)	NON-ACADEMIC ATTRITION COSTS (000's)	TOTAL ATTRITION COST (000's)
150	199	217	0	0	4	2	4	2	5	6	3	9ABB	854.1	3936	0	0	0	
150	109	75	1	1	5	5	6	6	4	0	0	9AEB	400.5	4171	1.5	7.7	9.2	
150	112	107	0	0	3	3	3	3	6	1	1	9CCB	608.9	5486	0	5.3	5.3	
96	150	206	0	0	2	1	2	1	5	2	1	9ABB	381	1902	0	6.9	6.9	
150	258	282	3	1	8	3	11	4	5	11	4	9BBB	1560.9	5051	2.2	6.7	8.9	
110	1074	1133	104	9	45	4	153	13	15	245	20	9SCC	2305.5	2387	177.0	78.7	255.7	
258	392	360	31	8	11	3	44	11	10	133	20	9ZBA	4356.4	5036	24.9	9.3	34.2	
156	2363	2614	0	0	0	0	25	1	2	0	0	9BGE	5602.6	2209	0	0	0	
225	916	869	9	1	27	3	36	4	1	74	8	-	-	-	-	-	-	
163	1470	1129	94	7	108	8	196	14	7	137	10	9BBA	4745.6	3546	131.5	150.3	281.8	
225	63	53	0	0	0	0	0	0	2	0	0	9SDH	182	2461	0	0	0	
156	1101	1087	0	0	11	1	11	1	8	216	18	9CEB	2509.1	1256	0	7.2	7.2	
156	1402	1510	0	0	15	1	15	1	1	0	0	9BBC	2215.7	1858	0	10.2	10.2	
206	1	1	0	0	0	0	0	0	3	0	0	-	-	-	-	-	-	
206	7	10	0	0	0	0	0	0	3	0	0	-	-	-	-	-	-	
206	12	10	0	0	0	0	0	0	3	0	0	-	-	-	-	-	-	
100	2427	2363	48	2	0	0	48	2	1	123	5	9FCB	4436.7	1821	78.3	0	78.3	
101	81	71	3	4	7	9	10	12	7	0	0	9FCA	97.2	3037	1.0	2.4	3.4	
225	314	387	33	9	4	1	37	10	13	87	22	-	-	-	-	-	-	
225	1151	1163	12	1	23	2	2	23	5	84	7	9DBA	1992	2540	124.5	249.1	373.6	
225	846	874	17	2	26	3	35	4	5	181	19	9DBA	1880	2540	117.6	176.3	293.9	
206	21	21	0	0	0	0	0	0	3	0	0	-	-	-	-	-	-	
110	2244	2140	67	3	112	5	183	8	13	280	12	9ABA	9216.9	4021	112.6	187.6	300.2	
100	3704	3139	285	8	360	10	636	17	15	0	0	9DBB	13351.9	4555	387.8	484.8	872.6	
225	897	978	78	8	68	7	141	14	15	280	26	9BAA	5907.2	5747	9.8	8.6	18.4	
101	144	170	0	0	2	1	2	1	5	2	1	9BDB	917.2	5558	0	8.2	8.2	
225	285	215	3	1	0	0	3	1	5	275	71	9QCG	1065.7	4037	14.8	0	14.8	
110	424	401	17	4	0	0	17	4	5	72	16	9FDB	1125.4	2501	18.8	0	18.8	
225	399	431	13	3	8	2	21	5	9	4	3	9SCE	3016.2	4274	63.6	42.4	106.0	
110	592	85	51	14	10	3	63	17	7	1128	125	9BBF	6388.4	17503	484.4	103.8	588.2	
156	167	169	2	1	3	2	5	3	10	9	5	9ADC	681.6	3872	0.9	1.9	2.8	
156	185	182	6	3	7	4	13	7	7	21	11	9ADD	703.8	4069	1.3	1.7	3	
156	3	4	0	0	0	0	0	0	0	0	0	9BGC	16.6	1187	-	-	-	
225	119	125	1	1	0	0	1	1	1	0	0	9SDF	89.1	781	2.3	0	2.3	
225	675	711	0	0	0	0	0	0	1	0	0	9SDE	615.4	1584	0	0	0	
225	362	371	0	0	0	0	4	1	1	0	0	9SDG	457.2	1252	0	0	0	
225	60	64	1	2	0	0	1	2	1	0	0	9SDL	527.7	824	0.4	0	0.4	
225	71	75	0	0	0	0	0	0	0	0	0	9SDJ	63.4	1219	0	0	0	
225	344	353	0	0	4	1	4	1	1	0	0	9SDK	431.0	1418	0	2.4	2.4	
100	573	589	42	7	12	2	48	8	15	12	2	9DGD	900.2	1127	16.8	4.8	21.6	

CDP	COURSE SHORT TITLE		C I N		LOCATION	COURSE LENGTH (Days)	NUMBER OF CONVENINGS	TYPE OF COURSE*	MINIMUM ASVAB	INPUT	GRADUATES	ACADEMIC ATTRITION (#)	ACADEMIC ATTRITION (%)	NON-ACADEMIC ATTRITION (#)	NON-ACADEMIC ATTRITION (%)	TOTAL ATTRITION (#)	TOTAL
6209	SH-A	A	823	0012	S. DIEGO	26	7	1	100	489	485	0	0	0	0	5	1
6239	AVA-AT-A1	C	100	2013	MEMPHIS	102	253	0	225	1687	1359	94	6	78	5	177	1
6240	AVA-AQ-A1	C	100	2013	MEMPHIS	102	253	0	225	418	352	20	5	28	7	49	1
6241	AVA-AX-A1	C	100	2013	MEMPHIS	102	253	0	225	679	572	45	7	59	9	101	1
6242	AVA-TD-A1	C	100	2013	MEMPHIS	102	253	0	225	558	487	21	4	21	4	44	8
6244	AFTA-AT-A1	C	100	2010	MEMPHIS	166	13	1	225	536	273	21	5	21	5	43	1
6245	AFTA-AQ-A1	C	100	2010	MEMPHIS	166	13	1	225	253	130	12	6	6	3	18	9
6246	AFTA-AX-A1	C	100	2010	MEMPHIS	166	13	1	225	260	125	12	6	10	5	20	1
6260	BTA	A	651	0010	G. LAKES	23	51	0	156	3212	2775	0	0	217	7	217	7
6261	ENA	A	652	0018	G. LAKES	42	13	0	156	1704	1790	0	0	35	2	35	2
6262	MMA	A	651	0015	G. LAKES	42	13	0	156	5218	5226	0	0	268	5	268	5
6263	ET-A1-ETN	A	100	0012	G. LAKES	68	13	1	225	1506	1043	65	5	52	4	120	9
6264	ET-A1-CTM	A	100	0012	G. LAKES	68	13	1	225	311	252	30	10	6	2	36	1
6265	ET-A1-ETR	A	100	0012	G. LAKES	68	13	1	225	1667	1309	76	5	76	5	157	1
6266	ET-A2-ETN	A	100	0014	G. LAKES	47	13	1	225	1018	826	9	1	28	3	38	4
6267	ET-A2-CTN	A	100	0014	G. LAKES	47	13	1	225	296	233	8	3	11	4	19	7
6268	ET-A2-ETR	A	100	0014	G. LAKES	47	13	1	225	1300	1108	37	3	37	3	74	6
6278	AC-A1	C	222	2010	MEMPHIS	96	13	0	110	672	656	85	12	27	4	115	1
6286	BVA	A	710	0010	G. PORT	65	16	1	150	211	156	2	1	2	1	4	2
6287	EA-A	A	412	0010	G. PORT	81	4	1	105	15	12	0	0	0	0	0	0
6289	CE-A	A	721	0018	G. PORT	58	2	1	156	59	58	0	0	1	2	1	2
6290	UT-A	A	720	0012	G. PORT	79	2	1	150	91	71	0	0	1	1	1	1
6291	CM-A	A	610	0022	G. PORT	94	3	1	150	76	60	0	0	1	1	1	1
6292	EO-A	A	730	0010	G. PORT	61	12	1	150	214	148	2	1	4	2	4	2
6299	EW-OP-TECH	A	102	0155	CORRY	138	7	0	110	143	79	7	6	54	39	61	4
6300	PCA	A	515	0018	B. HARBOR	24	21	1	100	151	104	0	0	0	0	0	0
6301	CTR-A	A	231	0044	CORRY	153	13	0	100	373	506	128	17	28	4	162	2
6302	CTT-A-PREP	A	231	0023	CORRY	89	13	0	100	935	530	77	10	15	2	96	1
6319	CTT/ICR/NONMORSE	A	231	0047	CORRY	18	13	0	100	56	43	0	0	0	0	0	0
6320	CTT-SPE-NONMORSE	A	231	0046	CORRY	32	13	0	100	299	245	0	0	0	0	0	0
6321	CTI-A2-RUSSIAN	A	232	0021	GOODFELLOW	105	3	1	206	110	102	1	1	2	2	3	3
6322	CTI-A1-CHI-MAN	A	232	0022	GOODFELLOW	112	2	1	206	37	24	0	0	3	9	3	3
6323	CTI-A2-VIETNAM	A	232	0023	GOODFELLOW	77	1	1	206	4	4	0	0	0	0	0	0
6326	CTI-A2-POLISH	A	232	0025	GOODFELLOW	56	1	1	206	1	1	0	0	0	0	0	0
6327	CTI-A2-BULGAR	A	232	0027	GOODFELLOW	28	1	1	206	2	2	0	0	0	0	0	0
6328	CTI-A2-KOREAN	A	232	0028	GOODFELLOW	91	1	1	206	5	6	0	0	0	0	0	0
6329	CTI-A2 COMMON BL	A	232	0029	GOODFELLOW	28	1	1	206	6	6	0	0	0	0	0	0
6330	CTI-A2-GERMAN	A	232	0030	GOODFELLOW	56	1	1	206	1	0	0	0	0	0	0	0
6331	CTI-A2-SPANISH	A	232	0031	GOODFELLOW	63	3	1	206	52	45	3	6	0	0	3	3
6332	CTI-A2-ROM	A	232	0032	GOODFELLOW	28	1	1	206	1	1	0	0	0	0	0	0

* 0 = self paced
1 = not self paced

TABLE A-1. ATTRITION DATA FOR CLASS
A1 AND A3 COURSES (continued)

	ACADEMIC ATTRITION (#)	ACADEMIC ATTRITION (%)	NON-ACADEMIC ATTRITION (#)	NON-ACADEMIC ATTRITION (%)	TOTAL ATTRITION (#)	TOTAL ATTRITION (%)	STANDARD ATTRITION (%)	SETBACKS (#)	SETBACKS (%)	RMS COST CODE	TOTAL COURSE COST (in 000's)	COST PER EQUIVALENT GRAD	ACADEMIC ATTRITION COSTS (000's)	NON-ACADEMIC ATTRITION COSTS (000's)	TOTAL ATTRITION COSTS (000's)
85	0	0	0	0	5	1	4	25	5	9FFE	611.4	923	0	0	0
59	94	6	78	5	177	11	10	15	1	9BBB	7236	4554	153.6	128.0	281.6
52	20	5	28	7	49	12	10	8	2	9BBB	1872	4554	30.3	42.5	72.8
72	45	7	59	9	101	15	10	13	2	9BBB	3036	4554	55.1	70.9	126
87	21	4	21	4	44	8	10	5	1	9BBB	2594	4554	50.5	50.5	101
73	21	5	21	5	43	10	10	190	38	9BBD	4857	8372	127.0	127.0	254
30	12	6	6	3	18	9	10	87	37	9BBD	2311	8372	80.6	40.3	120.9
25	12	6	10	5	20	10	10	82	35	9BBD	2226	8372	69.9	58.2	128.1
75	0	0	217	7	217	7	10	740	22	9JBA	6191.8	1583	0	264	264
90	0	0	35	2	35	2	10	243	13	9JFA	1596.1	769	0	76.8	76.8
26	0	0	268	5	268	5	10	1424	24	9JBA	2967.7	1583	0	126.5	126.5
43	65	5	52	4	120	9	12	315	22	9DBA	4700	2540	326.5	261.2	587.7
52	30	10	6	2	36	12	12	63	20	9DBA	1141	2540	118.9	23.8	142.7
109	76	5	76	5	157	10	12	387	23	9DBA	588	2540	368.0	368.0	736
126	9	1	28	3	38	4	8	160	16	9DBA	2574	2540	80.5	241.4	321.9
33	8	3	11	4	19	7	8	40	14	9DBA	716	2540	38.4	51.2	89.6
08	37	3	37	3	74	6	8	253	19	9DBA	3447	2540	215.5	215.5	431
56	85	12	27	4	115	16	15	244	31	9FBB	4781.8	8921	336.0	112.0	448
56	2	1	2	1	4	2	5	2	1	9MBB	838.4	4631	2.2	2.2	4.4
2	0	0	0	0	0	0	7	1	7	9MCB	121.7	5532	0	0	0
8	0	0	1	2	1	2	4	0	0	9NCB	238.1	4491	4.0	4.3	8.3
1	0	0	1	1	1	1	6	1	1	9NBB	464.8	5533	0	10.7	10.7
0	0	0	1	1	1	1	5	0	0	9PDB	469.0	6798	0	3.0	3
48	2	1	4	2	4	2	7	2	1	9PCB	1025.3	5728	3.8	7.2	11
9	7	6	54	39	61	43	1	145	69	9VBB	958.1	7313	12.7	82.3	95
04	0	0	0	0	0	0	10	0	0	-	-	-	-	-	-
06	128	17	28	4	162	21	40	695	128	9QCH	4624.5	8347	1208.0	284.2	1492.2
30	77	10	15	2	96	12	20	789	70	9QCJ	3389	4157	336.4	67.3	403.7
13	0	0	0	0	0	0	0	7	13	9QCK	163.1	4180	0	0	0
45	0	0	0	0	0	0	0	81	26	9QCM	406.5	1494	0	0	0
02	1	1	2	2	3	3	3	20	17	-	-	-	-	-	-
4	0	0	3	9	3	9	3	0	0	-	-	-	-	-	-
	0	0	0	0	0	0	3	0	0	-	-	-	-	-	-
	0	0	0	0	0	0	3	0	0	-	-	-	-	-	-
	0	0	0	0	0	0	3	0	0	-	-	-	-	-	-
	0	0	0	0	0	0	3	0	0	-	-	-	-	-	-
	0	0	0	0	0	0	3	0	0	-	-	-	-	-	-
	0	0	0	0	0	0	3	0	0	-	-	-	-	-	-
5	3	6	0	0	3	6	3	1	2	-	-	-	-	-	-
	0	0	0	0	0	0	3	0	0	-	-	-	-	-	-

CID	COURSE SHORT TITLE	C	I	N	LOCATION	COURSE LENGTH (Days)	NUMBER OF CONVENINGS	TYPE OF COURSE*	MINIMUM ASVAB	INPUT	GRADUATES	ACADEMIC ATTRITION (#)	ACADEMIC ATTRITION (%)	NON-ACADEMIC ATTRITION (#)	NON-ACADEMIC ATTRITION (%)	TOTAL ATTRITION (#)	TOTAL ATTRITION (%)
6333	CTI-A2-SERB-CRO	A	232	0033	GOODFELLOW	28	2	1	206	4	4	0	0	0	0	0	0
6337	UWFT - CLASS A	A	130	0138	N. LONDON	68	3	1	225	19	6	0	0	0	0	0	0
6339	HTA-PH 2	A	700	0010	PHIL	54	9	0	156	264	88	0	0	2	1	2	1
6340	HT-MAINT	A	790	0013	S. DIEGO	26	3	1	156	5	5	0	0	0	0	0	0
6345	SCAT-MOD-5	A	100	0052	N. LONDON	12	2	1	100	3	0	0	0	0	0	0	0
6346	SCAT-MOD-4	A	100	0051	N. LONDON	19	3	1	100	3	3	0	0	0	0	0	0
6347	SCAT-MOD-3	A	100	0050	N. LONDON	19	2	1	100	9	3	0	0	0	0	0	0
6501	ADJ-A1	C	601	2010	MEMPHIS	33	64	1	193	2483	2524	102	4	76	3	155	6
6502	ADR-A1	C	601	2012	MEMPHIS	46	6	1	193	247	251	3	1	3	1	5	2
6506	AO-A1	C	646	2010	MEMPHIS	64	13	1	201	1466	1861	17	1	103	6	121	7
6512	ABF-A1	C	821	2010	L. HURST	26	4	1	96	303	321	0	0	3	1	3	1
6513	ABE-A1	C	680	2012	L. HURST	45	6	1	96	245	267	3	1	3	1	5	2
6515	AE-A1	C	602	2012	MEMPHIS	75	25	1	212	2075	2313	44	2	67	3	113	5
6516	AME-A1	C	602	2015	MEMPHIS	60	12	1	96	722	910	8	1	33	4	33	4
6517	AMH-A1	C	602	2017	MEMPHIS	47	12	1	96	1643	1644	33	2	67	4	102	6
6518	AMS-A1	C	603	2010	MEMPHIS	59	12	1	96	1463	1467	15	1	75	5	91	6
6519	PR-BASIC	C	602	2010	L. HURST	70	13	0	156	471	530	5	1	10	2	15	3
6520	AG-A1	C	420	2010	L. HURST	101	4	1	110	287	295	6	2	6	2	9	3
6521	TD-A1	C	191	2010	MEMPHIS	39	64	0	225	400	393	4	1	4	1	4	1
6522	AKA	C	551	2010	MERIDAN	47	13	0	105	274	264	8	3	11	4	17	6
6523	PH-LEVEL 1	C	400	2010	PNCLA	75	52	0	105	394	310	18	5	7	2	26	7
6527	ABH-A1	C	822	2010	L. HURST	24	6	1	96	374	381	0	0	0	0	0	0
6528	AZ-A1	C	516	2010	MERIDAN	47	7	1	105	469	473	14	3	5	1	19	4
6529	ISA	A	242	0010	LOWRY	76	16	1	105	222	196	9	4	2	1	13	6
6530	ASE-A1	C	602	2019	MEMPHIS	64	6	1	156	175	176	2	1	5	3	7	4
6536	TM-AS-TORP-TECH	A	123	0127	ORLANDO	40	25	1	96	69	52	0	0	0	0	0	0
6537	AW-A1	C	210	2010	MEMPHIS	81	12	1	110	722	713	44	6	44	6	92	12

*0 = self paced

1 = not self paced

2

TABLE A-1. ATTRITION DATA FOR CLASS
A1 AND A3 COURSES (continued)

GRADUATES	ACADEMIC ATTRITION (#)	ACADEMIC ATTRITION (%)	NON-ACADEMIC ATTRITION (#)	NON-ACADEMIC ATTRITION (%)	TOTAL ATTRITION (#)	TOTAL ATTRITION (%)	STANDARD ATTRITION (%)	SETBACKS (#)	SETBACKS (%)	RMS COST CODE	TOTAL COURSE COST (in 000's)	COST PER EQUIVALENT GRAD	ACADEMIC ATTRITION COSTS (000's)	NON-ACADEMIC ATTRITION COSTS (000's)	TOTAL ATTRITION COSTS (000's)
8	0	0	0	0	0	0	3	0	0	-	-	-	-	-	-
	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-
	0	0	2	1	2	1	2	9	5	9BBF	555.7	5097	0	2.5	2.5
	0	0	0	0	0	0	2	0	0	9BGE	3	1019	0	0	0
	0	0	0	0	0	0	20	0	0	-	-	-	-	-	-
	0	0	0	0	0	0	20	0	0	-	-	-	-	-	-
	0	0	0	0	0	0	20	0	0	-	-	-	-	-	-
524	102	4	76	3	155	6	8	0	0	9ACC	549.8	1767	113.9	85.5	199.4
51	3	1	3	1	5	2	10	10	4	9ACB	780.5	2410	3.4	3.4	6.8
861	17	1	103	6	121	7	10	289	16	9AIB	5010.6	3037	17.0	102.1	119.1
21	0	0	3	1	3	1	10	13	4	9PDD	996.8	1706	0	15.8	15.8
67	3	1	3	1	5	2	8	51	18	9PDB	1169.5	3241	10.6	10.6	21.2
313	44	2	67	3	113	5	10	305	13	9BFB	6694.1	3532	76.2	114.3	190.5
110	8	1	33	4	33	4	10	50	6	9AEB	2097.8	3550	15.3	61.3	76.6
644	33	2	67	4	102	6	10	191	11	9AED	4043.9	2653	48.5	97.0	145.5
467	15	1	75	5	91	6	10	91	6	9AEC	4363.5	3758	18.7	93.3	112
30	5	1	10	2	15	3	5	117	21	9PCB	2010.4	5153	27.1	54.3	81.4
95	6	2	6	2	9	3	10	51	16	9PBB	1980.2	6691	25.0	25.0	50
93	4	1	4	1	4	1	7	0	0	9BEB	805.6	2051	6.0	6.0	12
64	8	3	11	4	17	6	5	28	10	9SBD	621.7	2656	1.3	1.7	3
110	18	5	7	2	26	7	8	22	6	9HBB	1489.5	4627	154.8	61.9	216.7
181	0	0	0	0	0	0	8	19	5	9PDC	1163.0	1836	0	0	0
173	14	3	5	1	19	4	8	24	5	9SCB	966.1	2236	24.0	8.0	32
96	9	4	2	1	13	6	10	6	3	9MBB	802.3	3303	15.0	3.8	18.8
76	2	1	5	3	7	4	10	5	3	9ADF	664.2	3669	0.6	1.8	2.4
12	0	0	0	0	0	0	5	0	0	9ABB	96	1902	0	0	0
113	44	6	44	6	92	12	15	224	27	9BCB	3102.1	4375	80.1	80.1	160.2

APPENDIX B

QUALIFIED AND UNQUALIFIED ATTRITION

COP	Short Title	CIN	1	2	3	4	5	6	7	8	C
			Months of Data *	Total Input	Qualified Input		Unqualified Input		Academic Attrition		
					Number	% of Total Input 3 + 2	Number	% of Total Input 5 + 2	Number	% of Total Input 7 + 2	
130E	Nuc Powr	A-661-0010	1	367	367	100	0	0	0	0	
340S	AVR AI	C-100-2014	0	--	--	--	--	--	--	--	
532R	MALRE A	C-680-2015	0	--	--	--	--	--	--	--	
541U	SQS-53-OP-Basic	A-130-0103	2	25	23	92	2	8	0	--	
1300	Nuc Powr	A-661-0010	0	--	--	--	--	--	--	--	
1301	Nuc Powr	A-661-0010	3	1423	1423	100	0	0	272	19	
0563	CTI-FLR11	A-231-0024	3	16	15	94	1	6	0	--	
3197	CTI-ELINT-OP	A-231-0028	2	11	11	100	0	0	0	--	
3522	AVCC-A1	C-780-2010	9	17	3	18	14	82	0	--	
5309	SCAT-MOD	A-100-0035	8	134	134	100	0	0	12	8.9	
6001	QM-A	A-061-0012	11	348	269	77	79	22	20	5.7	
6002	QM-A	A-061-0012	11	262	194	74	68	26	12	4.6	
6005	SM-A	A-061-0011	11	316	233	74	83	26	21	6.6	
6005	SM-A	A-061-0011	11	248	180	73	68	27	39	15.7	
6015	SURF-ST	A-130-0037	12	852	826	97	24	3	31	3.6	
6020	CTA-A	A-510-0015	12	175	133	76	42	24	15	8.6	
6027	FTM-A	A-113-0010	12	1767	1679	95	88	5	119	6.7	
6034	TM-SS-OPR	A-123-0127	11	330	229	69	101	31	5	1.5	
6036	TM-OPR	A-123-0127	11	210	149	71	61	29	4	1.9	
6041	MN-A	A-647-0016	11	144	114	79	30	21	33	22.9	
6046	IMA	A-670-0010	12	80	58	72	22	28	7	8.8	
6047	OMA	A-670-0018	12	73	59	81	14	19	4	5.5	
6053	CTO	A-580-0016	12	415	355	86	60	14	28	6.7	
6057	YNA	A-510-0012	12	1040	716	69	324	31	134	12.9	
6063	INFO-SPEC	A-570-0011	9	80	70	87	10	13	1	1.3	
6065	MU-Basic	A-450-0010	10	65	65	100	0	0	1	1.5	
6066	MR-A	A-702-0019	12	469	371	79	98	21	30	6.4	
6070	EMA	A-662-0016	12	1298	1145	88	153	12	13	1.0	
6071	EMA	A-662-0016	9	923	835	90	88	10	3	0.3	
6073	ICA	A-623-0012	12	1103	1011	92	92	8	4	0.4	
6076	PMA	A-790-0012	5	40	29	73	11	27	4	10.0	
6077	MLA	A-790-0010	3	60	47	78	13	22	3	5.0	
6078	EA-A	A-412-0010	3	13	13	100	0	0	0	--	
6079	CE-A	A-721-0018	8	141	136	96	5	4	0	--	
6081	BU-A	A-710-0010	11	174	133	76	41	24	0	--	
6082	SW-A	A-711-0015	7	102	73	72	29	28	0	--	
6083	UT-A	A-720-0012	10	89	62	70	27	30	0	--	
6093	TM-Sub-TECH	A-123-0127	11	151	112	74	39	26	1	0.7	
6097	EO-A	A-730-0010	11	236	182	77	54	23	2	0.8	
6102	FN-A	A-500-0014	12	846	650	77	196	23	85	10.0	
6103	OT-A	A-210-0011	11	400	349	87	51	13	63	15.8	
6106	HT-A	A-700-0010	12	1909	1643	86	266	14	2	0.1	
6108	FTM	A-113-0019	12	806	775	96	31	4	12	1.5	
6115	GMM-A	A-041-0010	12	1413	927	66	486	34	84	6.0	
6118	SQQ-23-PR-OPR	A-130-0097	1	6	6	100	0	0	0	--	
6119	HT-A	A-780-0035	12	893	800	90	93	10	5	0.5	
6120	HT	A-780-0035	12	1140	961	84	179	16	4	0.4	
6122	CTI HEBREW	A-232-0041	0	--	--	--	--	--	--	--	
6123	CTI ARABIC	A-232-0042	6	13	7	54	6	46	0	--	
6126	QRT MASTER	F-772-0010	6	71	41	58	30	42	5	7.0	

*Twelve complete months of data not available for all courses.

TABLE B-1. QUALIFIED AND UNQUALIFIED ATTRITION

6	7	8	9	10	11	12	13	14	15
Input of Total Input 5 + 2	Academic Attrition Number 7 + 2	% of Total Input 7 + 2	Qualified Attrites Number 9 + 2	% of Qualified Input 9 + 2	% of Academic Attrites 9 + 7	Unqualified Attrites Number 12 + 2	% of Unqualified Input 12 + 2	% of Academic Attrites 12 + 7	Chi Square
0	0	0	0	--	--	0	--	--	--
--	--	--	--	--	--	--	--	--	--
8	0	--	0	--	--	0	--	--	--
--	--	--	--	--	--	--	--	--	--
0	272	19	272	19	100	0	--	--	--
6	0	--	0	--	--	0	--	--	--
0	0	--	0	--	--	0	--	--	--
82	0	--	0	--	--	0	--	--	--
0	12	8.9	12	8.9	100	0	--	--	--
22	20	5.7	8	2.3	40.0	12	3.45	60	14.6
26	12	4.6	4	1.5	33.0	8	3.0	66.6	9.7
26	21	6.6	8	2.5	38.0	13	4.1	62.0	12.0
27	39	15.7	22	8.9	56.4	17	6.9	43.6	5.2
3	31	3.6	27	3.2	87.0	4	0.5	13.0	8.4
24	15	8.6	8	4.6	53.3	7	4.0	46.6	3.4
5	119	6.7	109	6.2	91.6	10	0.6	8.4	2.4
31	5	1.5	1	0.3	20.0	4	1.2	80.0	3.7
29	4	1.9	4	1.9	100	0	--	--	3.4
21	33	22.9	19	13.2	57.6	14	9.7	42.4	10.5
28	7	8.8	4	5.0	57.1	3	3.8	42.9	0.3
19	4	5.5	4	5.5	100	0	--	--	2.7
14	28	6.7	23	5.5	82.1	5	1.2	17.9	6.3
31	134	12.9	83	7.9	61.9	51	4.9	36.1	3.1
13	1	1.3	1	1.3	100	0	--	--	3.6
0	1	1.5	1	1.5	100	0	--	--	--
21	30	6.4	21	4.5	70.0	9	7.9	30.0	1.1
12	13	1.0	9	0.7	69.2	4	0.3	30.8	2.9
10	3	0.3	3	0.3	100	0	--	--	2.4
8	4	0.4	3	0.3	75.0	1	9.1	25.0	9.1
27	4	10.0	2	5.0	50.0	2	5.0	50.0	0.2
22	3	5.0	2	3.3	66.6	1	1.7	33.4	4.7
0	0	--	0	--	--	0	--	--	--
4	0	--	0	--	--	0	--	--	--
24	0	--	0	--	--	0	--	--	--
28	0	--	0	--	--	0	--	--	--
30	0	--	0	--	--	0	--	--	--
26	1	0.7	1	0.6	100	0	--	--	3.0
23	2	0.8	1	0.4	100	1	0.4	50.0	5.1
23	85	10.0	62	7.3	72.9	23	2.7	27.1	0.6
13	63	15.8	44	11.0	69.8	19	4.8	30.2	18.6
14	2	0.1	2	0.1	100	0	--	--	2.5
4	12	1.5	10	1.2	83.3	2	0.2	16.6	2.5
34	84	6.0	38	2.9	45.2	46	3.3	54.8	15.5
0	0	--	0	--	--	0	--	--	--
10	5	0.5	3	0.3	60	2	0.2	40	2.1
16	4	0.4	0	--	--	4	0.4	100	15.6
--	--	--	--	--	--	0	--	--	--
46	0	--	0	--	--	2	2.8	40.0	.3
42	5	7.0	3	4.2	60.0	2	2.8	40.0	.3

BEST AVAILABLE COPY

CDP	Short Title	CIN	1	2	3	4	5	6
			Months of Data	Total Input	Qualified Number	Input of Total Input 3 + 2	Unqualified Number	Input of Total Input 5 + 2
6131	DS-A	A-150-0025	11	320	313	98	7	2
6135	ETA-3R	A-104-0010	12	1220	1208	99	12	1
6137	ETA-3N	A-102-0010	11	707	694	98	13	2
6140	CTI-FRENCH	A-232-0040	1	1	1	100	0	--
6142	OSA	A-221-0011	12	2025	1702	84	323	16
6144	RM-A	A-202-0014	12	3508	3080	88	428	12
6146	PLRS-POS-Elec	A-121-0142	12	729	675	93	54	7
6149	CM-A	A-510-0022	11	125	101	81	24	19
6161	CTM	A-102-0109	12	285	285	100	0	--
6167	DP-A	A-531-0016	12	330	273	83	57	17
6172	STS-A	A-130-0029	12	408	385	94	23	6
6178	EW-OP/Maint TEC	A-102-0154	12	508	464	91	44	9
6182	ASH	C-602-2023	12	97	83	86	14	14
6183	ASM	C-602-2024	10	39	29	74	10	26
6184	INTRO-WELD	A-700-0011	1	1	1	100	0	--
6193	MK 111 OP-Basic	A-130-0088	3	26	23	89	3	12
6194	MK 114 OP-Basic	A-130-0083	3	133	112	84	21	16
6195	SQS-230G-OP	A-130-0084	3	100	88	88	12	12
6196	SQS-35V-OP	A-130-0085	1	5	3	60	2	40
6197	SQS-26BX-OP	A-130-0092	2	8	6	75	2	25
6198	SQS-26CX-OP	A-130-0086	3	79	64	81	15	19
6239	AVA-AT	C-100-2013	12	1570	1417	90	153	10
6240	AVA-AQ	C-100-2013	12	323	303	94	20	6
6241	AVA-AX	C-100-2013	12	508	460	90	48	10
6242	AVA-TD	C-100-2013	12	531	460	87	71	13
6244	AFT-AT	C-100-2010	12	482	470	97	12	2
6245	AFT-AQ	C-100-2010	12	195	190	97	5	2
6246	AFT-AX	C-100-2010	12	196	186	95	10	5
6260	BT-A	A-651-0010	3	515	388	75	127	25
6261	ENA	A-652-0018	3	288	215	75	73	25
6262	MMA	A-651-0015	4	972	718	74	254	26
6263	ETA1-ETN	A-100-0012	5	340	308	90	32	10
6264	ETA1-CTM	A-100-0012	3	71	60	84	11	16
6265	ETA1-ETR	A-100-0012	5	257	222	86	35	14
6266	ETA2-ETN	A-100-0014	4	304	296	97	8	3
6267	ETA2-CTM	A-100-0014	4	39	38	97	1	3
6268	ETA2-ETR	A-100-0014	3	152	147	97	5	3
6278	AC	C-222-2010	12	471	396	84	75	16
6286	BU-A	A-710-0010	12	181	152	84	29	17
6287	EA-A	A-412-0010	3	10	8	80	2	20
6289	CE-A	A-721-0018	5	53	49	92	4	6
6290	UT-A	A-720-0012	10	95	79	83	16	17
6291	CM-A	A-610-0022	9	91	64	70	27	30
6292	EO	A-730-0010	12	210	166	79	44	21
6299	EW OP-TECH	A-102-0155	12	104	93	89	11	11
6300	PC	A-515-0018	10	133	99	74	34	26
6301	CTR	A-231-0044	12	519	171	33	348	67
6302	CTT-PREP	A-231-0023	12	374	366	98	8	2
6319	CTT-ICR	A-231-0047	8	39	39	100	0	--
6320	CTT-SPE	A-231-0046	10	79	74	94	5	6

TABLE B-1. QUALIFIED AND UNQUALIFIED ATTRITION (continued)

4	5	6	7	8	9	10	11	12	13	14	15
Input	Unqualified Input		Academic Attrition		Qualified Attrites		of Academic	Unqualified Attrites		of Academic	Chi
% of	Number	% of	Number	% of	Number	% of	Attrites	Number	% of	Attrites	Square
Total Input		Total Input		Total Input		Total Input			Total Input		
3 + 2		5 + 2		7 + 2		9 + 2	9 + 7		12 + 2	12 + 7	
98	7	2	26	8.1	25	7.8	96.1	1	0.3	3.3	9.2
99	12	1	9	0.7	8	0.7	88.8	1	8.2	11.1	1.9
98	13	2	10	1.4	10	1.4	100	0	--	--	2.6
100	0	--	0	--	0	--	--	0	--	--	--
84	323	16	88	4.3	57	2.8	64.8	31	1.5	35.2	24.0
88	428	12	235	6.7	191	5.4	81.3	44	1.3	15.7	9.4
93	54	7	57	7.8	53	7.3	92.9	4	0.5	1.0	0.1
81	24	19	1	0.8	0	--	--	1	0.8	100	0.6
100	0	--	1	0.4	1	0.4	100	0	--	--	--
83	57	17	17	5.1	11	5.2	64.8	6	1.8	35.2	2.8
94	23	6	7	1.7	7	1.7	100	0	--	--	2.2
91	44	9	76	14.9	58	11.4	76.3	18	3.5	23.7	23.3
86	14	14	0	--	0	--	--	0	--	--	--
74	10	26	0	--	0	--	--	0	--	--	--
100	0	--	0	--	0	--	--	0	--	--	--
89	3	12	0	--	0	--	--	0	--	--	--
84	21	16	0	--	0	--	--	0	--	--	--
88	12	12	0	--	0	--	--	0	--	--	--
60	2	40	0	--	0	--	--	0	--	--	--
75	2	25	0	--	0	--	--	0	--	--	--
81	15	19	0	--	0	--	--	0	--	--	--
90	153	10	103	6.6	84	5.3	81.5	19	1.2	18.4	8.5
94	20	6	17	5.3	14	4.3	17.6	3	0.9	17.7	2.2
90	48	10	44	8.7	40	7.9	90.9	4	0.8	9.1	0.1
87	71	13	20	3.8	13	2.4	65.0	7	1.3	35	6.6
97	12	2	25	5.2	17	3.5	68.0	8	1.6	32	82.2
97	5	2	11	5.6	11	5.6	100	0	--	--	2.4
95	10	5	15	7.7	11	5.6	73.3	4	2.0	25.6	11.2
75	127	25	0	--	0	--	--	0	--	--	--
75	73	25	0	--	0	--	--	0	--	--	--
74	254	26	0	--	0	--	--	0	--	--	--
90	32	10	24	7.1	22	6.5	91.6	2	0.6	8.3	0.3
84	11	16	7	9.8	6	8.5	85.7	1	1.4	14.3	0.4
86	35	14	17	6.6	13	5.1	76.5	4	1.6	23.5	0.8
97	8	3	5	1.6	5	1.6	100	0	--	--	1.2
97	1	3	2	5.1	1	2.6	50.0	1	2.6	50.0	1.2
97	5	3	5	3.2	4	2.6	80.0	1	0.7	20.0	0.7
84	75	16	89	18.9	58	12.3	65.1	31	6.6	34.8	27.6
84	29	17	2	1.1	1	0.6	50.0	1	0.5	50.0	0.1
80	2	20	0	--	0	--	--	0	--	--	--
92	4	6	0	--	0	--	--	0	--	--	--
83	16	17	0	--	0	--	--	0	--	--	--
70	27	30	0	--	0	--	--	0	--	--	--
79	44	21	1	0.5	1	0.5	100	0	--	--	3.1
89	11	11	6	5.8	3	2.8	50.0	3	2.8	50.0	6.5
74	34	26	0	--	0	--	--	0	--	--	--
33	348	67	123	23.7	27	5.2	21.9	96	18.5	78.1	8.2
98	8	2	67	17.9	55	14.7	82.1	12	3.2	17.9	88.0
100	0	--	0	--	0	--	--	0	--	--	--
94	5	6	0	--	0	--	--	0	--	--	--

BEST AVAILABLE COPY

COPY AVAILABLE FOR PRODUCTION
PERMIT FULLY LEGIBLE PRODUCTION

COP	Short Title	CIN	1	2	3	4	5	6	Acca N
			Months of Data	Total Input	Qualified Input		Unqualified Input		
					Number	% of Total Input 3 + 2	Number	% of Total Input 5 + 2	
6321	CTI-RUSSIAN	A-232-0021	9	98	45	46	53	54	
6322	CTI CHJ	A-232-0022	5	29	22	76	7	24	
6323	CTI-VIETNAM	A-232-0023	1	1	1	100	0	--	
6329	CTI-COMMN BL	A-232-0029	2	3	2	67	1	33	
6331	CTI SPANISH	A-232-0031	6	33	5	15	28	85	
6337	UWFI-ASCL	A-130-0138	1	8	7	88	1	12	
6339	HT-PH2	A-700-0010	3	149	99	66	50	34	
6343	SCAT-MOD-5	A-100-0052	1	3	3	100	0	--	
6346	SCAT-MOD-4	A-100-0051	2	4	4	100	0	--	
6347	SCAT-MOD-3	A-100-0050	1	3	3	100	0	--	
6380	RMA-SEA	A-202-0026	2	206	179	87	27	13	
6381	RMA-SHORE	A-202-0027	2	227	199	88	28	12	
6501	ADJ	C-601-2010	12	1472	1272	86	200	14	
6502	ADR	C-601-2012	12	167	149	89	18	11	
6506	AO	C-646-2010	12	988	808	82	180	18	
6512	ABF	C-821-2010	12	276	223	81	53	19	
6513	ABE	C-680-2012	12	193	158	82	35	18	
6515	AE	C-602-2012	12	1202	1047	87	155	13	
6516	AME	C-602-2015	12	506	454	90	52	10	
6517	AMH	C-602-2017	12	1006	900	90	106	10	
6518	AMS	C-603-2010	12	1123	1002	90	114	10	
6519	PR-Basic	C-602-2010	12	328	256	81	62	19	
6520	AG	C-420-2010	12	268	231	86	37	14	
6521	TD	C-191-2010	12	472	425	90	47	10	
6523	PH Level-1	C-400-2011	12	200	181	90	19	10	
6527	ABH	C-822-2010	12	286	227	79	59	21	
6528	AZ	C-516-2010	12	291	227	78	64	22	
6529	IS	A-242-0010	11	214	185	86	20	14	
6530	ASE	C-602-2019	12	65	54	83	11	17	
6536	TM-AS-TORP-TECH	A-123-0127	3	43	26	60	17	40	
6537	AW	C-210-2010	12	551	369	67	182	33	

MEAN:

TOTAL:

BEST AVAILABLE COPY

TABLE B-1. QUALIFIED AND
UNQUALIFIED ATTRITION (continued)

	5	6	7	8	9	10	11	12	13	14	15
	Unqualified Input		Academic Attrition		Qualified Attrites			Unqualified Attrites			
Input	Number	% of Total Input	Number	% of Total Input	Number	% of Total Input	% of Academic Attrites	Number	% of Unqualified Input	% of Academic Attrites	Chi Square
2		5 + 2		7 + 2		9 + 2	9 + 7		12 + 2	12 + 7	
	53	54	1	1.0	1	1.0	100	0	--	--	4.4
	7	24	0	--	0	--	--	0	--	--	--
	0	--	0	--	0	--	--	0	--	--	--
	1	33	0	--	0	--	--	0	--	--	--
	26	85	2	6.1	0	--	--	2	6.1	100	0.2
	1	12	2	25.0	2	25.0	100	0	--	--	3.4
	50	34	3	2.0	1	0.7	33.3	2	1.3	66.6	0.4
	0	--	0	--	0	--	--	0	--	--	--
	0	--	0	--	0	--	--	0	--	--	--
	0	--	0	--	0	--	--	1	33.3	100	--
	27	13	0	--	0	--	--	0	--	--	--
	28	12	0	--	0	--	--	0	--	--	--
	200	14	56	3.8	36	2.4	64.2	20	1.3	35.8	22.4
	18	11	4	2.4	3	1.8	75.0	1	0.6	25.0	1.3
	180	18	9	0.9	7	0.7	77.7	2	0.2	22.3	1.5
	53	19	1	0.4	1	0.4	100	0	--	--	3.1
	35	18	5	2.6	3	1.5	60.0	2	1.0	40.0	0.5
	155	13	22	1.8	18	1.5	81.8	4	0.3	18.2	0.2
	52	10	2	0.4	0	--	--	2	0.4	100	9.1
	106	10	8	0.8	5	0.5	62.5	3	0.3	37.5	3.7
	114	10	3	0.3	3	0.3	100	0	--	--	2.4
	62	19	5	1.5	5	1.5	100	0	--	--	2.8
	37	14	8	2.9	3	1.1	37.5	5	1.9	62.5	12.5
	47	10	4	0.8	4	0.8	100	0	--	--	2.3
	19	10	15	7.5	9	4.5	60.0	6	3.0	40.0	13.9
	59	21	0	--	0	--	--	0	--	--	--
	64	22	12	4.1	10	3.4	83.3	2	0.7	16.7	0.7
	20	14	11	5.1	7	3.3	63.6	4	1.9	36.4	3.3
	11	17	2	3.1	1	1.5	50.0	1	1.5	50.0	9.6
	17	40	0	--	0	--	--	0	--	--	--
	182	33	49	8.9	20	3.6	40.8	29	5.3	59.2	15.4

DISTRIBUTION LIST

Air Force

Headquarters, Air Training Command (XPTD, Dr. D. E. Meyer)
Headquarters, Air Training Command (XPTIA, Mr. Goldman)
Air Force Human Resources Laboratory, Brooks Air Force Base
Air Force Human Resources Laboratory (Library), Lowry Air Force Base
Air Force Office of Scientific Research/AR (Dr. A. R. Fregly)

Army

Commandant, TRADOC (Technical Library)
Army Research Institute (Dr. Ralph R. Canter, 316C; Dr. Edgar Johnson)

Coast Guard

Commandant, U.S. Coast Guard Headquarters (G-P-1/62; G-RT/81)

Marine Corps

CMC (Code OT)
CGMCDEC (Mr. Greenup)
Director, Marine Corps Institute

Navy

Assistant Secretary of the Navy (R&D) (4E741, Dr. S. Koslov)
CNO (OP-987P7, CAPT Connery; OP-991B, M. Malehorn; OP-987P10, Dr. R. Smith;
OP-987, H. Stone)
NAVCOMPT (Code NCD-7)
ONR (Code 458, 455)
ONRBO Boston (J. Lester)
ONRBO Chicago
ONRBO Pasadena (E. E. Gloye)
CNM (MAT-03424, Mr. A. L. Rubinstein)
CNET (01, 00A, N-5 (6 copies)
CNAVRES (Code 02)
COMNAVSEASYS COM (03, 047C1, 047C12)
COMNAVAIRSYS COM (03, 340F)
CNET SUPPORT (00, 01A)
CNTECHTRA (0161, Dr. Kerr (5 copies))
CNATRA (F. Schufletowski)
COMTRALANT
COMTRALANT (Educational Advisor)
COMTRAPAC (2 copies)

DISTRIBUTION LIST (continued)

Navy (continued)

CO NAVPERSRANDCEN (Code 01, Dr. Regan; Dr. Earl Jones; Library)
NAVPERSRANDCEN Liaison (Code 01H)
Superintendent NAVPGSCOL (Code 2124)
Superintendent Naval Academy Annapolis (Chairman, Behavioral Science Dept.)
CO NAVEDTRAPRODEVCE (AH3)
CO NAVEDTRASUPPCEN NORVA
CO NAVEDTRASUPPCENPAC (5 copies)
CO NAVAEROMEDRSCHLAB (Chief Aviation Psych. Div.)
CO FLTCOMDIRSYSTRACENPAC
CO NAMTRAGRU
CISO, NTTC Corry Station
CO NAVTRAEQUIPCEN (N-21, N-215, N-131 (2 copies), N-2211, N-00AF, N-00M, PM TRADE)
Center for Naval Analyses (2 copies)
U.S. Naval Institute (CDR Bowler)
OIC NODAC (Code 2)
CO TRITRAFAC (2 copies)
CO NAVSUBTRACENPAC (2 copies)

Other DOD

Military Assistant for Human Resources, OAD (E&LS) ODDR&E (COL Henry Taylor)
OASD (I&L) - WR (LT COL Grossel)
Director, Human Resources Office, Defense Advanced Research Projects Agency
(R. Young)
Defense Advanced Research Projects Agency (CTO, Dr. H. F. O'Neil, Jr.)
Institute for Defense Analyses (Dr. Jesse Orlansky)

Non-DOD

Essex Corporation (Dr. John Collins)

Information Exchanges

DDC (12 copies)
DLSIE (James Dowling)
Scientific Technical Information Office, NASA
Executive Editor, Psychological Abstracts, American Psychological Association
ERIC Processing and Reference Facility, Bethesda, MD (2 copies)